

# PATENTS

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[File 350] Derwent WPIX 1963-2008/UD=200855

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[File 347] JAPIO Dec 1976-2007/Dec(Updated 080328)

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; D S
Set      Items      Description
S1      611629      S (VARY??? OR VARIE? ? OR VARIA? OR ADJUST? OR CHANGE? ? OR CHANGING OR
ADAPT? OR MODIF? OR RECALIBRAT??? OR ALTER?) (7N) (VALUE? ? OR VALUATION? OR COUNT? ? OR
INDEX? OR INDICES OR QUANTIT? OR NUMBER? ? OR AMOUNT? ? OR AVERAGE? ? OR MEDIAN? ? OR
EXTENT? OR MAGNITUDE?)
S2      462577      S DERIVATIVE?
S3      114762      S IMPEDANCE? OR BIOIMPED?
S4      107880      S ELECTRIC?(3N) (PULSE? ? OR PULSING OR IMPULS? OR PULSATION? OR COUNTER
PULS? OR REACTANC? OR RESISTANC? OR RESISTIV?)
S5      30          S DZ()DT
S6      130961      S (PATHO())PHYSIO? OR PATHOPHYSIO? OR PATHOLOG? OR DISEASE? OR DAMAGE? OR
RUPTUR? OR HURT? OR DESTRUCT? OR INJUR? OR IMPAIR? OR HARM? OR WOUND? OR TRAUMA? OR
DEFECT?) (10N) (APPRAIS??? OR ASSESS? OR DETERMIN? OR EVALUAT? OR JUDG? OR ESTIMAT? OR
IDENTIF? OR ASCERTAIN? OR CHECK? OR DIAGNOS? OR MEASUR? OR SCORE? ? OR SCORING OR RATE? ?
OR RATING?)
S7      5216        S (S1 OR S2) (7N) (S3 OR S4)
S8      41          S S7(70N)S6
S9      40          S S8 NOT S5
S10     471         S (S3 OR S4) (7N)S6
S11     33          S S10(70N) (S1 OR S2)
S12     11          S S11 NOT (S8 OR S5)
S13     346939      S IC=A61B?
S14     80          S S10 AND S13
S15     73          S S14 NOT (S8 OR S5 OR S12)
S16     21306       S MYOCARD?
S17     141323      S HEART? OR CARDIO? OR CARDIA? OR CARDIU? OR CORONAR? OR ENDOCARD? OR
PERICARD? OR EPICARD?
S18     53639       S MUSCLE?
S19     85          S S7(70N) (S16 OR S17 OR S18)
S20     78          S S19 NOT (S15 OR S8 OR S5)
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5/25,K/2 (Item 2 from file: 350)

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Derwent WPIX

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0015431962

WPI Acc no: 2005-781156/200580

XRAM Acc no: C2005-240263

XRPX Acc No: N2005-646749  
An impedance cardio-vasograph  
Patent Assignee: DEPT ATOMIC ENERGY (ATOM-N)  
Inventor: JINDAL C D

Patent Family ( 1 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
IN 199900635	I3	20050506	200580	B

IN 199900635

Local Applications (no., kind, date): IN 1999MU635 A 19990909

Priority Applications (no., kind, date): IN 1999MU635 A 19990909

IN I3

NOVELTY - An impedance cardio-vasograph is provided for the diagnosis of peripheral vascular diseases and for the assessment of cardiac function in various heart diseases. The invention uses a new waveform namely, normalized impedance plethysmographic waveform and a novel calibration method allowing the user to check the calibration wave carrier current through a resistance network of fixed resistance value in calibration mode producing the same effect as that of constant amplitude sine wave carrier current through a resistance network of variable resistance value. The new waveform introduced normalizes the rate of change of impedance with respect to basal impedance of the body segment and is therefore directly proportional to the blood flow index in the segment. This is achieved by taking logarithm of the instantaneous electrical impedance ( $Z$ ) of the body segment and then differentiating with respect to time to obtain ( $Z^1 dZ/dt$ ). Thus the instrument gives three outputs namely, change in impedance as a function of time  $DZ(t)$ , rate of change of impedance ( $dZ/dt$ ) and normalized rate of change of impedance ( $Z^1 dZ/dt$ ) in calibration as well as in patient mode. Image 0/0

^5/25,K/5 (Item 5 from file: 350)

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0015059607 & & Drawing available

WPI Acc no: 2005-408827/200542

XRPX Acc No: N2005-331795

An improved electronic device for recording blood flow signal variability

Patent Assignee: DEPT ATOMIC ENERGY (ATOM-N)

Inventor: JINDAL G D

Patent Family ( 1 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
IN 195350	B	20050204	200542	B

IN 195350

Local Applications (no., kind, date): IN 1999MU468 A 19990628  
Priority Applications (no., kind, date): IN 1999MU468 A 19990628

#### IN B

NOVELTY - An improved electronic device for recording blood flow signal variability for diagnosing diseases of different internal organs such as liver, kidney, pancreas, intestines of the living beings, the device comprising: a non-invasive real time peripheral arterial blood flow recorder, the recorder being connected to a) means for controlling the mode of operation (calibration/patient) and the parameter to be acquired (impedance/rate of change of impedance) (1,2,3,4,6,8,9); b) means for controlling acquisition of data representative of the parameters and generation (10,11,12,13); c) means for converting one input signal into three output signals namely heart rate signal, respiratory rate signal and blood flow signal for desired time periods after the data acquisition of dZ/dt signal, by locating the highest point "C" in the neighborhood of programmable time interval and subsequently, "B" and "X" points for each "C" point (14,15); and d) means for performing Fast Fourier Transform on the signals and provide the output as display on monitor and/or hard copy on a printer (16,17). Image 1/3

5/25,K/6 (Item 6 from file: 350)

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0014179523 & *Drawing available*

WPI Acc no: 2004-364792/200434

XRPX Acc No: N2004-291775

Cardiac function measurement method for cardiography device, involves measuring impedance by demodulating current and voltage signals at each of multiple simultaneous frequencies of stimulation

Patent Assignee: UNIV QUEENSLAND TECHNOLOGY (UYQU-N); CHETHAM S (CHET-I); CORNISH B (CORN-I); THOMAS B (THOM-I)

Inventor: CHETHAM S; CORNISH B; THOMAS B

Patent Family ( 5 patents, 105 & countries )

Patent Number	Kind	Date	Update	Type
WO 2004032738	A1	20040422	200434	B
AU 2003266844	A1	20040504	200465	E
EP 1553871	A1	20050720	200547	E
JP 2006501903	W	20060119	2006607	E
US 20060247543	A1	20061102	200672	E

WO 2004032738

Local Applications (no., kind, date): WO 2003AU1333 A 20031009; AU 2003266844 A 20031009; EP 2003747728 A 20031009; WO 2003AU1333 A 20031009; WO 2003AU1333 A 20031009; JP 2004542097 A 20031009; WO 2003AU1333 A 20031009; US 2006530860 A 20060525

Priority Applications (no., kind, date): AU 2002951925 A 20021009

#### Alerting Abstract WO A1

NOVELTY - An alternating current is applied to an outer electrode pairs at multiple simultaneous frequencies of stimulation, and corresponding voltage signals are measured. The impedance at each frequency is measured by demodulating current and voltage signals. The impedance values are fitted to a theoretical frequency dependent impedance locus, and locus is interpolated to obtain value at zero frequency.

DESCRIPTION - An INDEPENDENT CLAIM is also included for an impedance cardiography device.

USE - For measuring cardiac output of a person affected with cardiovascular disease using impedance cardiography device (claimed).

ADVANTAGE - The cardiac activity and cardiac output of patients are reliably and accurately measured.

DESCRIPTION OF DRAWINGS - The figure shows a schematic view of electrocardiography (ECG) trace showing measured impedance over time, time derivative ( $dz/dt$ ) of impedance trace.

41,42 impedance traces

43 ECG

5/25,K/7 (Item 7 from file: 350)

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0013996146 & *Drawing available*

WPI Acc no: 2004-177311/200417

Method of processing signals for monitoring continuous cardiac variables

Patent Assignee: SONG C G (SONG-I)

Inventor: SONG C G

Patent Family ( 1 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
KR 2003084290	A	20031101	200417	B

KR 2003084290

Local Applications (no., kind, date): KR 200222943 A 20020426

Priority Applications (no., kind, date): KR 200222943 A 20020426

#### Alerting Abstract KR A

NOVELTY - A method of processing signals for monitoring continuous cardiac variables is provided to monitor correctly the cardiac variables by setting up start points of each frame as peak points of impedance signals.

DESCRIPTION - An initialization process for cardiac cycles is performed. A minimum RxxR interval in each stage is detected and a window size is determined. An upper and a lower threshold level are determined. The window is applied to a  $dz/dt$  wave at the beginning of QRS. The largest peak  $dz/dt$  is detected. The upper level, the peak  $dz/dt$ , and the lower level are compared to each other. The data of current cycles is added to the previous ones. The summed data are divided into N.

5/25,K/9 (Item 9 from file: 350)

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0012900081 & & *Drawing available*

WPI Acc no: 2002-759682/200282

XRPX Acc No: N2002-598220

Cardiac output assessing method involves processing impedance waveform associated with thoracic cavity by using discrete transforms for identifying fiducial points

Patent Assignee: BAURA G D (BAUR-I); CARDIODYNAMICS INT CORP (CARD-N); NG S K (NGSK-I)

Inventor: BAURA G D; NG S K

Patent Family ( 2 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
US 20020138014	A1	20020926	200282	B
US 6561986	B2	20030513	200335	E

US 20020138014

Local Applications (no., kind, date): US 2001764589 A 20010117; US 2001764589 A 20010117

Priority Applications (no., kind, date): US 2001764589 A 20010117

Alerting Abstract US A1

NOVELTY - An impedance waveform associated with the thoracic cavity is measured, by passing current through electrode arranged relative to the thoracic cavity. The waveform is processed by using discrete transforms to identify the fiducial points for determining the cardiac output.

DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

1. Information storage device storing cardiac output assessing program;
2. Apparatus for assessing at least one hemodynamic parameter associated with living subject;
3. Signal processing apparatus; and
4. Method of providing treatment to living subject.

USE - For hemodynamic analysis of living subjects for studying performance and properties of the cardiovascular system useful for diagnosis and assessing conditions or diseases within the living subjects.

ADVANTAGE - The assessing of hemodynamic parameters are performed non invasively, accurately and easily based on fiducial points generated.

DESCRIPTION OF DRAWINGS - The figure shows the logical flow diagram illustrating waveform analysis methodology in cardiac output determination.

Original Publication Data by Authority Argentina Publication No. ... Original Abstracts: various parameters relating to cardiac stroke volume (such as LVET and  $dZ/dt_{max}$ ), from which cardiac output may be determined. The use of wavelet transforms for fiducial point detection increases the accuracy... as LVET and  $dZ/dt_{max}$ ), from which cardiac output may be determined. The use of wavelet transforms for fiducial point detection increases the accuracy of the CO determination by reducing cross-term...

5/25,K/11 (Item 11 from file: 350)

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0010314922 & & *Drawing available*

WPI Acc no: 2000-629126/200061

XRPX Acc No: N2000-466166

Impedance signal separation circuit for impedance cardiography, has peak value memory with associated low pass filter, buffer, and high pass filter feeding separation section which also receives sum signal

Patent Assignee: SEIFERT H K (SEIF-I)

Inventor: SEIFERT H K

Patent Family ( 1 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
DE 19914436	A1	20001005	200061	B

DE 19914436

Local Applications (no., kind, date): DE 19914436 A 19990330

Priority Applications (no., kind, date): DE 19914436 A 19990330

Alerting Abstract DE A1

NOVELTY - The sum signal is supplied to the input of a peak value memory, which stores the sum signal maximum values for the output signal. The output is fed to a low pass filter and a control line of the memory is linked to a logic circuit, energized via a first differential signal of the sum signal. The output control line of the logic circuit is linked to the voltage terminal of a storage capacitor of the memory. The memory output is fed via a low pass filter, a buffer and a high pass filter to a separation circuit, which also receives the sum signal.

USE - For non-invasive heart beat determination from impedance cardiogram.

ADVANTAGE - Determination of true impedance signal free of interfering breath superimposition.

DESCRIPTION OF DRAWINGS - The figure shows the course of the sum signal

I Sum signal

II Breath signal

5/25,K/14 (Item 14 from file: 350)

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0008396039 & & *Drawing available*

WPI Acc no: 1997-512352/199747

XRPX Acc No: N1997-426546

Non-invasive haemodynamic monitoring using impedance cardiography - includes computer which is used to process signals from bioimpedance electrode system with correction for gain frequency distortion

Patent Assignee: ARD CO PTE LTD (ARDP-N); LIUTU PTE LTD (LIUT-N); RHEO-GRAPHIC PTE LTD

(RHEO-N); RHEOGRAPHIC PTE LTD (RHEO-N); TEIKOKU COMMUNICATION EQUIP CO LTD (TEIK-N)

Inventor: BELIAEV K R; BELYAEV K R; MOROZOV A A; SCHOOKIN S I; SHCHUKIN S I; YONG W H;

ZUBENKO V G; KATO H; WAKIYAKA H; YOSHIMURA W

Patent Family ( 14 patents, 25 & countries )

Patent Number	Kind	Date	Update	Type
WO 1997037591	A1	19971016	199747	B
US 5685316	A	19971111	199751	E
AU 199724200	A	19971029	199810	E
EP 901342	A1	19990317	199915	E
CN 1221325	A	19990630	199944	E
JP 2000508194	W	20000704	200037	E
US 6161038	A	20001212	200067	E
EP 1078597	A2	20010228	200113	E
AU 748652	B	20020606	200249	E
CN 1370503	A	20020925	200306	NCE
RU 2195168	C2	20021227	200314	E
JP 3486419	B2	20040113	200406	E
CA 2251250	C	20040629	200443	E
CN 1221325	C	20051005	200650	E

WO 1997037591

Local Applications (no., kind, date): WO 1997SG13 A 19970407; US 1996629420 A 19960408; AU 199724200 A 19970407; EP 1997919867 A 19970407; WO 1997SG13 A 19970407; CN 1997195339 A 19970407; JP 1997536130 A 19970407; WO 1997SG13 A 19970407; US 1996629420 A 19960408; WO 1997SG13 A 19970407; US 1998171138 A 19981008; EP 1997919867 A 19970407; EP 2000204179 A 19970407; AU 199724200 A 19970407; CN 2001104722 A 20010220; WO 1997SG13 A 19970407; RU 1998120640 A 19970407; JP 1997536130 A 19970407; WO 1997SG13 A 19970407; CA 2251250 A 19970407; WO 1997SG13 A 19970407; CN 2001132920 A 20010911

Priority Applications (no., kind, date): US 1996629420 A 19960408; US 1998171138 A 19981008; JP 2000353533 A 20001120; JP 2000353535 A 20001120; CN 2001104722 A 20010220; JP 2001107092 A 20010405

Alerting Abstract WO A1

The haemodynamic monitoring apparatus includes a bioimpedance electrode system which employs a total of six

electrodes (20) at the xiphoid process level, a pair of measuring electrodes (22), positioned laterally on the neck, an influencing electrode (24) on the left leg, and an influencing electrode (26) on the forehead. The electrodes may be standard EEG spot electrodes.

The bioimpedance signals are corrected for gain frequency distortion through the use of sinusoidal test signals through the measuring electrodes to identify distortions and to correct the same during actual measurements. Time derivative bioimpedance signals are employed, the power spectrum calculated and an autoconvolution procedure used to emphasise the heart rate harmonic.

ADVANTAGE - Provides accurate and substantially continuous assessment of a patient's cardiac performance.

Original Publication Data by AuthorityArgentinaPublication No. ...Claims;check-points;calculating stroke volume as a function of said ELVET, maximum time-differentiated bioimpedance ( $dZ/dt$ )max, specific blood resistivity (P), distance (L) between two bioimpedance voltage sensing electrodes of the... analog input device, baseline bioimpedance (Z0), said correction factor Zs-q, and a novel scale factor (K); andcalculating cardiac output by multiplying said stroke volume by said heart rate...

5/25,K/17 (Item 17 from file: 350)

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0007248359 & *Drawing available*

WPI Acc no: 1995-301731/199539

Related WPI Acc No: 1993-100599; 1995-223326

XRPX Acc No: N1995-229042

Impedance cardiography monitoring appts - generates time-frequency distribution of data from time derivative impedance signal for selected portion of signal spanning single heartbeat, and identifies time of occurrence of event in selected portion of signal

Patent Assignee: UNIV DREXEL (UYDR-N)

Inventor: SUN H H; WANG X

Patent Family ( 1 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
US 5443073	A	19950822	199539	B

US 5443073

Local Applications (no., kind, date): US 1991758034 A 19910912; US 1992834425 A 19920212; US 199361793 A 19930513

Priority Applications (no., kind, date): US 1991758034 A 19910912; US 1992834425 A 19920212; US 199361793 A 19930513

Alerting Abstract US A

The cardiac monitor gathers and processes thoracic impedance and EKG signals. EKG signals are adaptively processed by digitizing, filtering, differentiating and raising the resultant differential by a power greater than one to emphasize changes in the slope of the EKG signal. Blocks of the processed EKG data are analyzed to identify peak



amplitude and to compare spacing between peak amplitudes adaptively to more accurately identify R wave peaks. Stroke volume is determined from a thoracic impedance signal and its time derivative. Pref, a time-frequency distribution is taken of the time derivative thoracic impedance signal after low- and high-pass filtering to identify B and X wave events in the signal which are used to determine ventricular ejection time and  $dZ/dt$  min for a determination of heart stroke volume by conventional methods.

USE/ADVANTAGE - Processing time-derivative, thoracic impedance signal generated from patient to identify events in time-derivative impedance signal associated with beats of patient's heart to determine heart rate from ECG and heart stroke volume from thoracic impedance signals.

9/25,K/10 (Item 10 from file: 350)

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0012257408 & *Drawing available*

WPI Acc no: 2002-197516/200226

XRPX Acc No: N2002-150057

Edema judging apparatus in living body for diagnosis of diseases concerned with heart, kidney, liver etc, measures bioelectric impedance value by supplying alternating current of different frequencies to body of subject

Patent Assignee: TANITA CORP (TANI-N); TANITA KK (TANI-N)

Inventor: TAKEHARA K; TAKEHARA T

Patent Family ( 8 patents, 28 & countries )

Patent Number	Kind	Date	Update	Type
EP 1177760	A1	20020206	200226	B
US 20020022787	A1	20020221	200226	E
JP 2002045346	A	20020212	200227	E
US 6643543	B2	20031104	200374	E
JP 3699640	B2	20050928	200566	E
EP 1177760	B1	20070627	200742	E
DE 60129079	E	20070809	200757	E
DE 60129079	T2	20080228	200817	E

EP 1177760

Local Applications (no., kind, date): EP 2001118268 A 20010730; US 2001918793 A 20010801; JP 2000232703 A 20000801; US 2001918793 A 20010801; JP 2000232703 A 20000801; EP 2001118268 A 20010730; DE 60129079 A 20010730; EP 2001118268 A 20010730; DE 60129079 A 20010730; EP 2001118268 A 20010730

Priority Applications (no., kind, date): JP 2000232703 A 20000801; EP 2001118268 A 20010730

Alerting Abstract EP A1

NOVELTY - A measuring device measures the bioelectric impedance value by supplying alternating current of different frequencies to body of subject, based on which a calculator computes the values of judging parameter. A determining unit determines reference values of same kind based on the parameter values of same kind calculated in

the past. A judging unit judges edema by comparing the judging parameter value of same kind with the past values.  
USE - For judging edema in living body for diagnosis of diseases concerned with heart, kidney, liver etc.  
ADVANTAGE - Enables to judge the edema appropriately for each individual subject. The operation of the judging apparatus is simplified without inputting the personal parameters such as a height, age, sex, a body weight.  
DESCRIPTION OF DRAWINGS - The figure shows the block diagram of edema judging apparatus.

9/5,K/34 (Item 4 from file: 347)

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JAPIO

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07568193 \*\*Image available\*\*

## THERAPEUTIC UNIT HAVING AN IMPEDANCE MEASURING FUNCTION

Pub. No.: 2003-062034 [JP 2003062034 A ]

Published: March 04, 2003 (20030304)

Inventor: KAWANISHI KATSUZO

Applicant: YAMATO SCALE CO LTD

Application No.: 2001-255449 [JP 2001255449]

Filed: August 27, 2001 (20010827)

International Class: A61H-039/00; A61B-005/05; A61H-039/02; A61N-001/32

## ABSTRACT

**PROBLEM TO BE SOLVED:** To provide a therapeutic unit, capable of being easily used at home or the like and directly detecting a diseased part to be treated through measuring the living body impedance of the body of a patient by applying an electric current thereto, and capable of efficiently treating the diseased part through checking the effect of the treatment.

**SOLUTION:** The therapeutic unit is provided with a measuring part for measuring the living body impedance of the sites of the body through applying an electric current to the body of the patient, and a therapeutic means for treating the diseased part of the patient. The therapeutic unit detects and treats the diseased part based on the measured impedance, and judges and displays the effectiveness of the treatment based on the varied amount between a first impedance before the treatment of the diseased part and a second impedance after the treatment thereof. Further, the therapeutic unit is provided with an operating means for determining several settings for therapeutic means, such as treatment intensity and treatment time, for a next treatment, based on the effectiveness of the treatment. The therapeutic unit controls the therapeutic means so as to carry out the next treatment based on the several settings for therapeutic means, such as treatment intensity and treatment time.

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12/25,K/4 (Item 4 from file: 350)

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0010356322 & & *Drawing available*

WPI Acc no: 2000-671951/200065

Related WPI Acc No: 2000-171622

XRPX Acc No: N2000-498118

Electrical impedance for breast cancer diagnosis, involves obtaining impedances across breasts on preset portions so that difference in measurements corresponding to each breast determines possibility of cancer  
Patent Assignee: ORGAN L W (ORGA-I); Z-TECH CANADA INC (ZTEC-N)

Inventor: ORGAN L W

Patent Family ( 2 patents, 2 & countries )

Patent Number	Kind	Date	Update	Type
US 6122544	A	20000919	200065	B
CA 2492903	A1	19991105	200522	E

US 6122544

Local Applications (no., kind, date): US 199883739 P 19980501; US 1999301355 A 19990429; CA 2231038 A 19980505; CA 2492903 A 19980505

Priority Applications (no., kind, date): US 199883739 P 19980501; US 1999301355 A 19990429

Alerting Abstract US A

NOVELTY - Impedance measurements are performed at predetermined portions encircling each breast. The measurements corresponding to each breast are compared to determine difference substantially for diagnosing possibility of cancer.

DESCRIPTION - An INDEPENDENT CLAIM is also included for electrode array for the diagnosis of breast cancer.

USE - For breast cancer diagnosis.

ADVANTAGE - Enables detecting breast cancer in a very simplified manner.

DESCRIPTION OF DRAWINGS - The figure is a block diagram of the breast cancer diagnosing apparatus.

Original Publication Data by Authority/ArgentinaPublication No. Original Abstracts:A method and apparatus for screening, sensing, or diagnosing disease states by obtaining a plurality of electrical impedance data measurements in organized patterns from two anatomically homologous body regions, one of which may be affected... ..impedance matrix, and deriving from these matrices their eigenvalues and eigenvectors. The matrices and their derivatives are then related by their characteristics to normal or disease states.

^20/25,K/10 (Item 10 from file: 350) [Links](#)

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0015350876 & & Drawing available

WPI Acc no: 2005-701136/200572

Related WPI Acc No: 2005-701105

XRPX Acc No: N2005-575311

Heart condition e.g. heart failure, onset predicting method for patient, involves predicting onset of medical condition within patient based on impedance values representative of thoracic fluid levels and ventricular mass

Patent Assignee: BORNZIN G A (BORN-I); MIN X (MINX-I); PACESETTER INC (PACE-N); PARK E (PARK-I)

Inventor: BORNZIN G A; MIN X; PARK E

Patent Family ( 3 patents, 37 & countries )

Patent Number	Kind	Date	Update	Type
US 20050216067	A1	20050929	200572	B
EP 1582233	A2	20051005	200572	E
US 7272443	B2	20070918	200763	E

US 20050216067

Local Applications (no., kind, date): US 2004810437 A 20040326; US 200414276 A 20041215; EP 2005251861 A 20050324; US 200414276 A 20041215

Priority Applications (no., kind, date): US 2004810437 A 20040326; US 200414276 A 20041215

Alerting Abstract US A1

NOVELTY - The method involves detecting impedance values representative of thoracic fluid levels within a patient to detect a fluid overload. Impedance values representative of ventricular mass are detected within the patient. An onset of a medical condition within the patient is predicted based on the impedance values representative of the thoracic fluid levels and the ventricular mass.

DESCRIPTION - An INDEPENDENT CLAIM is also included for a system for predicting the onset of a heart condition within a patient using an implantable medical device.

USE - Used for predicting onset of a heart condition e.g. heart failure, hypertrophy and pulmonary edema, of a patient in which an implantable medical device, such as pacemaker and implantable cardioverter/defibrillator (ICD), is implanted.

ADVANTAGE - The onset of the medical condition within the patient is accurately predicted based on the values representative of the thoracic fluid levels and the ventricular mass, thus enabling a medical device to automatically deliver appropriate therapy in an efficient and simple manner.

DESCRIPTION OF DRAWINGS - The drawing shows pertinent components of an implantable heart failure-responsive medical system having a pacemaker detecting and evaluating heart failure based on ventricular and predicting the onset of heart failure.

10 Pace maker

12 Ventricular cardiac pacing leads

14 Drug pump

16 Warning device

18 Bedside heart failure monitor

Original Publication Data by AuthorityArgentinaPublication No. Claims:A system for predicting the onset of a heart condition within a patient using an implantable medical device, the system comprising:a fluid overload

detection unit operative to detect impedance values representative of changes in fluid levels within the thorax of the patient; a ventricular mass overload detection unit operative to detect impedance values representative of changes in ventricular mass of the patient; and an overload-based prediction unit operative to predict the onset of a heart condition within the patient based on the values representative of fluid overload in combination with...

20/25,K/15 (Item 15 from file: 350) [Links](#)

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0014692008 & & *Drawing available*

WPI Acc no: 2005-039597/200504

XRFX Acc No: N2005-034568

Physiologic state detection method for human myocardium, involves diagnosing extent of change in myocardial physiologic state as function of rate of change of measured myocardial impedance from computed baseline value

Patent Assignee: UNIV OHIO STATE (OHIS); CONNELL P I (CONN-I); DEL RIO C L (DRIO-I); DZWONCZYK R R (DZWO-I); HOWIE M B (HOWI-I)

^Inventor: DEL RIO C L; DZWONCZYK R R; HOWIE M B; MCCONNELL P I; CONNELL P I

Patent Family ( 2 patents, 106 & countries )

Patent Number	Kind	Date	Update	Type
WO 2004105862	A2	20041209	200504	B
US 20060235326	A1	20061019	200670	E

WO 2004105862

Local Applications (no., kind, date): WO 2004US17224 A 20040528; US 2003473737 P 20030528; WO 2004US17224 A 20040528; US 2005555470 A 20051102

Priority Applications (no., kind, date): US 2003473737 P 20030528; US 2005555470 A 20051102

Alerting Abstract WO A2

NOVELTY - The method involves measuring periodically mean myocardial electrical impedance values between each pair of electrode pair attached to myocardium, and storing the values as function of time. The extent of change in the physiologic state is diagnosed as a function of rate of change of measured impedance from computed baseline value, after the mean impedance value is determined to change from baseline value.

USE - For detecting quantitative measure of physiologic and biochemical state of human myocardium or coronary artery during and after surgery, also detects extent of change of myocardial electrical impedance from baseline value to provide diagnosis of extent of ischemia, stenosis, tissue rejection, reperfusion and effectiveness of cardioplegia and ischemia preconditioning as well as the general effectiveness of coronary bypass surgery.

ADVANTAGE - Provides the physician with a quantitative estimate of the extent of any of several physiologic states of the myocardium or coronary artery.

DESCRIPTION OF DRAWINGS - The figure shows a block diagram of the myocardial impedance monitor.

^20/25,K/35 (Item 35 from file: 350) [Links](#)

Fulltext available through: [Order File History](#)

Derwent WPIX

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0011208931 & *Drawing available*

WPI Acc no: 2002-147717/200219

XRPX Acc No: N2002-111984

External defibrillator for cardiac arrest treatment, outputs electrical therapy pulses to patient, when command is generated by controller based on detected cardiac arrhythmia detection

Patent Assignee: CARDIAC SCI INC (CARD-N); LIN D (LIND-I); MATHUR P (MATH-I); YBARRA R (YBAR-I)

Inventor: LIN D; MATHUR P; YBARRA R

Patent Family ( 6 patents, 93 & countries )

Patent Number	Kind	Date	Update	Type
WO 2001095977	A1	20011220	200219	B
AU 200134436	A	20011224	200227	E
EP 1289603	A1	20030312	200320	E
US 6658290	B1	20031202	200379	E
US 20040082972	A1	20040429	200429	E
US 6993386	B2	20060131	200610	E

WO 2001095977

Local Applications (no., kind, date): WO 2001US802 A 20010110; AU 200134436 A 20010110; EP 2001906537 A 20010110; WO 2001US802 A 20010110; US 2000591669 A 20000612; US 2000591669 A 20000612; US 2003688362 A 20031016; US 2000591669 A 20000612; US 2003688362 A 20031016

Priority Applications (no., kind, date): US 2000591669 A 20000612; US 2003688362 A 20031016

Alerting Abstract WO A1

NOVELTY - A sensor (18) detects a physiological signal of a patient indicating an intrinsic cardiac activity, based on which the cardiac arrhythmia is detected by a detector (22). A therapy delivery unit (24) outputs electrical therapy pulses to the patient, when a controller (20) automatically generates a command based on cardiac arrhythmia detection.

DESCRIPTION - An INDEPENDENT CLAIM is also included for public cardiac therapy pulse providing method.

USE - For treating patient suffering from sudden cardiac arrest.

ADVANTAGE - The external defibrillator can be used effectively by a person without requiring special medical training. The patient is continuously monitored and need of therapy is determined, automatically. The defibrillator has several modes of operations for use in different purposes.

DESCRIPTION OF DRAWINGS - The figure shows the block diagram of an external defibrillator.

18 Sensor

20 Controller

22 Detector

24 Therapy delivery unit

Original Publication Data by Authority Argentina Publication No. ... Claims: activity; a cardiac arrhythmia detector coupled to said sense circuit to detect a life threatening cardiac arrhythmia based on said physiological signal; a microprocessor-based controller adapted to generate automatically a command in the presence of said cardiac arrhythmia; and a therapy delivery circuit adapted to deliver electrical therapy pulses to said patient to correct said cardiac arrhythmia in response to said command, and a comparator adapted to compare said physiological signal to a threshold value, said threshold value being generic to cardiac patients. We claim: 1. A publicly accessible external defibrillator for automatically generating a generic cardiac therapy for a person suffering from a life threatening cardiac condition, said external defibrillator comprising: a first electrode adapted to be attached to said patient

20/25,K/43 (Item 43 from file: 350) [Links](#)

Fulltext available through: [Order File History](#)

Derwent WPIX

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0009104127 & *Drawing available*

WPI Acc no: 1999-023295/199902

XRPX Acc No: N1999-017940

Electrode-tissue contact determination method for cardiac tissue diagnosis - involves measuring impedance level of electrode before and after tissue contact, which is then compared with preset value

Patent Assignee: MEDTRONIC INC (MEDT)

Inventor: LI H

Patent Family ( 5 patents, 26 & countries )

Patent Number	Kind	Date	Update	Type
US 5836990	A	19981117	199902	B
EP 904739	A2	19990331	199917	E
EP 904739	B1	20051123	200577	E
DE 69832446	E	20051229	200603	E
DE 69832446	T2	20060803	200651	E

US 5836990

Local Applications (no., kind, date): US 1997934286 A 19970919; EP 1998307265 A 19980908; EP 1998307265 A 19980908; DE 69832446 A 19980908; EP 1998307265 A 19980908; DE 69832446 A 19980908; EP 1998307265 A 19980908

Priority Applications (no., kind, date): US 1997934286 A 19970919

Alerting Abstract US A

The method involves selecting specific constant voltage or current pulses to be applied to an electrode (6) of a catheter. Then, the selected pulses are applied to the electrode. The electrode is made to contact with a tissue area arranged in an ionic liquid atmosphere.

The electrical characteristic of electrode during, before and after contact with the tissue area is determined. The magnitude of initial rise in impedance of electrode for each pulse signal is measured. The measured impedance level

is compared with predefined value. Based on the comparison result, the contact level of electrode is judged.

USE - For cardiac RF ablation apparatus.

ADVANTAGE - Enables determination of electrode contact quickly and accurately. Facilitates grasping of contact information by physician or user instantaneously thereby reduces damage of cardiac tissue. Facilitates usage in various therapeutic and diagnostic processes.



# BIBLIOGRAPHIC

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[File 136] BioEngineering Abstracts 1966-2007/Jan  
(c) 2007 CSA. All rights reserved.  
*\*File 136: This file is closed.*

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Set	Items	Description
S1	1637069	S (VARY??? OR VARIE? ? OR VARIA? OR ADJUST? OR CHANGE? ? OR CHANGING OR ADAPT? OR MODIF? OR RECALIBRAT??? OR ALTER?) (5N) (VALUE? ? OR VALUATION? OR COUNT? ? OR

INDEX? OR INDICES OR QUANTIT? OR NUMBER? ? OR AMOUNT? ? OR AVERAGE? ? OR MEDIAN? ? OR  
 EXTENT? OR MAGNITUDE?)  
 S2 2460375 S DERIVATIVE?  
 S3 407449 S IMPEDANCE?  
 S4 440972 S ELECTRIC?(3N) (S3 OR (PULSE? ? OR PULSING OR IMPULS? OR PULSATION? OR  
 REACTANC? OR RESISTANC? OR RESISTIV?))  
 S5 1006362 S MYOCARD?  
 S6 24327872 S PATHO()PHYSIO? OR PATHOPHYSIO? OR PATHOLOG? OR DISEASE? OR DAMAGE? OR  
 RUPTUR? OR HURT? OR DESTRUCT? OR INJUR? OR IMPAIR? OR HARM? OR WOUND? OR TRAUMA? OR  
 DEFECT?  
 S7 3823010 S S6(7N) (APPRAIS??? OR ASSESS? OR DETERMIN? OR EVALUAT? OR JUDG? OR  
 ESTIMAT? OR IDENTIF? OR ASCERTAIN? OR CHECK? OR DIAGNOS? OR MEASUR? OR SCORE? ? OR  
 SCORING OR RATE? ? OR RATING?)  
 S8 3476 S (S1 OR S2) (5N) (S3 OR S4)  
 S9 9 S S8(7N)S7  
 S10 58 S S8(70N)S7  
 S11 49 S S10 NOT S9  
 S12 28 RD (unique items)  
 S13 138 S S8 AND S7  
 S14 80 S S13 NOT S10  
 S15 58 RD (unique items)  
 S16 33351 S EIT OR EITS OR ERT OR ERTS OR IMPEDOGRA? OR ICG OR ICGS OR ZCG OR ZCGS  
 S17 602 S D2()DT  
 S18 41 S S17 AND S5  
 S19 39 S S18 NOT S13  
 S20 215 S S16 AND S5  
 S21 37 S S20 AND S7  
 S22 35 S S21 NOT (S19 OR S13)  
 S23 22 RD (unique items)

9/7,K/1 (Item 1 from file: 73)

Fulltext available through: [STIC Full Text Retrieval Options](#)

EMBASE

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0079558173 EMBASE No: 2003265026

Exercise training improves baroreflex sensitivity in type 2 diabetes

Loimaala A.; Huikuri H.V.; Koobi T.; Rinne M.; Nenonen A.; Vuori I.  
 South Karelian Central Hospital, Dept. of Clin. Physiol./Nucl. Med., Lappeenranta, Finland; South Karelian Central  
 Hospital, Valto Kakelankatu 14, 53130 Lappeenranta, Finland  
 Author email: seanlo@uta.fi  
 Corresp. Author/Affil: Loimaala A.: South Karelian Central Hospital, Valto Kakelankatu 14, 53130 Lappeenranta,  
 Finland  
 Corresp. Author Email: seanlo@uta.fi

Diabetes ( Diabetes ) ( United States ) July 1, 2003 , 52/7 (1837-1842)

CODEN: DIAEA ISSN: 0012-1797

Document Type: Journal ; Article Record Type: Abstract

Language: English Summary language: English

Number of References: 35

Type 2 diabetes is a strong risk factor for coronary heart disease and sudden cardiac death. It is associated with

reduced baroreflex sensitivity (BRS) and heart rate variability (HRV), which are indicators of increased risk for mortality and morbidity in various patient populations. This study was designed to assess the effects of exercise training on BRS, HRV, and hemodynamics in patients with type 2 diabetes. Subjects (50 men, mean age 53.3 +/- 5.1 years) with type 2 diabetes were randomized into either a control group, in which they received conventional treatment only, or an exercise group, in which they received conventional treatment together with heart rate - controlled endurance training twice a week and supervised muscle strength training twice a week for 12 months. Measurements taken at baseline and follow-up included VO SUB 2max, standard time and frequency domain measures of HRV during 24-h recording, and BRS by the phenylephrine method. Cardiac index, systemic vascular resistance index, stroke index, and pulse wave velocity were measured by whole-body impedance cardiography. Significant improvements in VO SUB 2max (exercise group: +2.3 ml . kg SUP -1 . min SUP -1; P < 0.005 vs. control group), muscle strength, and glycemic control (exercise group: HbA SUB 1c -0.9%; P < 0.001 vs. control group) were observed in the exercise group. BRS increased in the exercise group, from 6.8 to 8.6 ms/mmHg, and decreased in the control group, from 7.5 to 6.4 ms/mmHg (95% CI for the difference between 0.05 and 4.36 ms/mmHg; P < 0.05). No significant changes in the time or frequency domain measures of HRV or in systemic hemodynamics were observed. We concluded that exercise training improves BRS sensitivity in type 2 diabetes subjects in addition to increasing the exercise capacity and muscle strength and improving glucose control. These beneficial effects in reflectory autonomic regulation and glucose control caused by exercise may be associated with improved prognosis of type 2 diabetes patients.

#### Medical Descriptors:

\*

...clinical trial; controlled study; diabetes control; disease association; endurance; follow up; glucose blood level; heart index; heart rate variability; hemodynamics; human; impedance cardiography; ischemic heart disease; male; morbidity; mortality; muscle strength; parameter; priority journal; prognosis; pulse wave; randomized controlled trial; risk...

#### Orig. Descriptors:

^9/7,K/7 (Item 1 from file: 8)

Ei Compendex(R)

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04677407 E.I. Monthly No: EIM8408-065331

Title: MEASUREMENT OF CARDIAC HEMODYNAMICS BY IMPEDANCE CARDIOGRAPHY DURING EXERCISE.

Author: Hayashi, R.; Nishimoto, Y.

Corporate Source: Osaka Kosei-Nenkin Hospital, Dep of Medicine, Osaka, Jpn

Conference Title: Proceedings of 5th International Conference on Electrical Bio-Impedance.

Conference Location: Tokyo, Jpn Conference Date: 19810824

Sponsor: Japan Soc for Medical Electronics & Biological Engineering, Jpn; Inst of Electrical Engineers of Japan, Tokyo, Jpn; Inst of Electronics & Communication Engineers of Japan, Tokyo, Jpn; Japanese Assoc for Thoracic Surgery, Jpn; Japanese Circulation Soc, Jpn; et al

E.I. Conference No.: 04518

Source: Publ by Business Cent for Academic Soc Japan, Tokyo, Jpn p 161-164

Publication Year: 1981

Language: English

Document Type: PA; (Conference Paper)

Journal Announcement: 8408

Identifiers: EVALUATION OF IMPEDANCE CARDIOGRAPHY DURING EXERCISE; MULTIVARIATE STATISTICAL ANALYSIS OF CARDIAC HEMODYNAMIC PARAMETERS; IMPEDANCE CHANGES; STROKE VOLUME; DIAGNOSTIC VALUE OF IMPEDANCE TESTING IN ISCHEMIC HEART DISEASE; PARTIAL CORRELATION ANALYSIS; PRINCIPAL COMPONENT ANALYSIS; HEMODYNAMIC PARAMETERS OF ISCHEMIC PATIENTS; MULTI-STAGE TREADMILL EXERCISE...

Identifiers:

12/7,K/2 (Item 2 from file: 155)

Fulltext available through: [STIC Full Text Retrieval Options](#)

MEDLINE(R)

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09587095 PMID: 2270530

The association of platelet and red cell count with platelet impedance changes in whole blood and light-scattering changes in platelet rich plasma: evidence from the Caerphilly Collaborative Heart Disease Study.

Sharp D S; Beswick A D; O'Brien J R; Renaud S; Yarnell J W; Elwood P C

Medical Research Council Epidemiology Unit, Cardiff, United Kingdom.

Thrombosis and haemostasis ( GERMANY ) Oct 22 1990 , 64 (2) p211-5 , ISSN: 0340-6245--Print Journal

Code: 7608063

Publishing Model Print

Document type: In Vitro; Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

This epidemiological study was undertaken to explore possible relationships among various haematological indices, prevalent ischaemic heart disease and platelet "function" as measured by two rather different methods. ADP-induced platelet impedance changes in whole blood were strongly associated with prevalent ischaemic heart disease in a general population of 49-66 year men at increased risk. Adenosine diphosphate (ADP) induced platelet aggregation in platelet rich plasma (PRP) at a constant platelet count and also the whole blood platelet count and red cell (RBC) count were strongly and independently related to ADP-induced platelet impedance changes. Both platelet count and platelet aggregation in PRP assessed by changes in optical density were directly related to increasing platelet "sensitivity" as measured by impedance changes in whole blood but RBC count was inversely related. Positive independent relationships between platelet impedance changes and plasma viscosity and fibrinogen were markedly attenuated when platelet count was taken into account, but this finding does not discount a role for these factors in platelet aggregation. No relationship was noted between white blood cell (WBC) count and platelet impedance changes; however, a significant inverse relationship was noted with platelet aggregation in PRP. These findings indicate that laboratory-based experimental findings can be observed in population based studies, and that these haematological factors may be important indicators of ischaemic disease in the population.

Record Date Created: 19910221

Record Date Completed: 19910221

12/7,K/3 (Item 3 from file: 155)

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MEDLINE(R)

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09256132 PMID: 2633478

[Impedance methods of studying the vascular changes in insulin-dependent diabetes mellitus]

Prouchvaniia s impedansni metodiki na sudovite promeni pri insulinozavisim zakharen diabet,  
Ikonomov M

Vutreshni bolesti ( BULGARIA ) 1989 , 28 (6) p52-6 , ISSN: 0506-2772--Print Journal Code: 0032666

Publishing Model Print

Document type: Comparative Study; English Abstract; Journal Article

Languages: BULGARIAN

Main Citation Owner: NLM

Record type: MEDLINE; Completed

The early diagnosis of the vascular degenerative changes in diabetes mellitus is a present day problem in view of their early prophylaxis. In 89 patients with insulin-dependent diabetes the changes of the peripheral vascular segments in the legs and of the brain arterial system were studied with impedance methods by clinical index--stage of the disease. Changes of the impedance indices which characterize the structural-tonic changes of the vascular wall as well as changes of the velocities of the volumetric hemispheric circulations--the basic parameters of brain hemodynamics--were found. In difference from the peripheral vascular segments, the changes of the complex impedance indices of the carotid arterial system occur in the moderately severe forms of diabetes mellitus. The impedance noninvasive examinations give early preclinical informative data for the peripheral vascular segments of the legs and for the brain vascular systems determined by the clinical stage of the disease.

Record Date Created: 19900521

Record Date Completed: 19900521

12/7,K/4 (Item 4 from file: 155)

Fulltext available through: [STIC Full Text Retrieval Options](#)

MEDLINE(R)

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08244907 PMID: 3568565

Applications of applied potential tomography (APT) in respiratory medicine.

Harris N D; Suggett A J; Barber D C; Brown B H

Clinical physics and physiological measurement - an official journal of the Hospital Physicists' Association, Deutsche Gesellschaft für Medizinische Physik and the European Federation of Organisations for Medical Physics ( ENGLAND ) 1987 , 8 Suppl A p155-65 , ISSN: 0143-0815--Print Journal Code: 8209031

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Impedance pneumography, electrical impedance measurements of the lung, is a technique which has been widely used to monitor respiration non-invasively and more recently, the onset of pulmonary oedema. Attempts have been made to try to localise the changes in impedance using electrode arrays and electrode guarding. These techniques

allow localisation to a particular hemithorax, but the resolution of the majority of the systems remains poor. To assess the performance and possible clinical applications of APT, measurements have been made following increases in lung volume and pulmonary blood volume. During inspiration an increase in both the area and the magnitude of the impedance changes over the area of the lungs was observed. Numerical analysis of the impedance changes in normal subjects reveals a consistently high correlation between the volume of air inspired and the

magnitude of the impedance changes. The resolution of the system is sufficient to monitor differences in ventilation in the right and left lung and to measure variations in these levels with posture. Preliminary clinical work suggests that APT may be used to detect ventilatory defects in certain types of lung disease. APT measurements show a decrease in resistivity over the area of the lungs when the pulmonary blood volume is increased by the intravenous infusion of 1.5 litres of isotonic saline. Similar changes in the volume of fluid in the lungs are known to occur in pulmonary oedema. APT measurements of lung impedance may detect the onset of pulmonary oedema in high risk patients.

Record Date Created: 19870609

Record Date Completed: 19870609

^12/7,K/5 (Item 5 from file: 155)

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MEDLINE(R)

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05664855 PMID: 674885

Transthoracic electrical impedance in anaesthesia and intensive care.

Tempel G; Jelen S; Hundelshausen B

Resuscitation ( ENGLAND ) 1978 , 6 (2) p97-105 , ISSN: 0300-9572--Print Journal Code: 0332173

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Pulmonary fluid accumulation plays an important role in the development of post-traumatic pulmonary insufficiency. Yet initially diagnosis may be difficult. The measurement of transthoracic electrical impedance was used to detect early pulmonary fluid overload. In healthy test persons infusions of isotonic electrolyte solutions and diuresis were accompanied by changes of impedance dependent on the amount of infused or withdrawn fluid. In patients with pulmonary insufficiency a relatively low mean body impedance was recorded. Enforced diuresis resulted in a rise and in diminution of the alveolar-arterial oxygen difference.

Record Date Created: 19780925

Record Date Completed: 19780925

^12/7,K/6 (Item 1 from file: 5)

Biosis Previews(R)

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16844655 Biosis No.: 200200438166

Investigation of security and practicability in thoracoscope using Fiberoptic Bronchoscope

Author: Yang Yibin (Reprint); Xu Qiyong (Reprint); Lin Yuhui (Reprint); et al  
Author Address: Respiratory Department, Zhongnan Hospital, Wuhan University, Wuhan, 430071, China\*\*China  
Journal: Wuhan Daxue Xuebao (Yixue Ban) 23 ( 1 ): p 79-81 Jan., 2002 2002  
Medium: print  
Document Type: Article  
Record Type: Abstract  
Language: Chinese

Abstract: Objective: In order to evaluate the security and practicability of thoracoscope examination and treatment using Fiberoptic Bronchoscope. Methods: 25 patients of pleural effusion and 22 patients of spontaneous pneumothorax were performed thoracoscope with fibrobronchoscope, while Pulmonary impedance plethysmogram monitoring were given and changes of Vital signs, indexes of ECG and blood gas analysis were also recorded. Results: The mean Pulmonary Arterial Pressure (MPAP) and heart rate of pleural effusion patients were significantly higher in the course of operation than in per-and post-operation ( $P<0.05$ ); No serious side effects occurred in all patients. 22 patients of pleural effusion were given corrective pathologic diagnosis, and treatments with Fiberoptic Bronchoscope instead of thoracoscope were succeeded in 11 patients with spontaneous pneumothorax. Conclusion: the operation did not increase incidents of critical side effects in patients which cardiac and pulmonary function are normal before operation. It is suggested the technique of thoracoscope using Fiberoptic Bronchoscope has obvious advantages in examination and treatment of pleura and lung diseases due to its convenience, broad field of observation and low incidents of critical side effects.

^12/7,K/8 (Item 3 from file: 5)

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06238696 Biosis No.: 198171057655

IMPEDANCE CARDIOGRAPHY IN MITRAL VALVE DISEASE

Author: PARULKAR G B (Reprint); JINDAL G D; PADMASHREE R B; HARIDASAN G; DHARANI J B  
Author Address: DEP CARDIOVASC THORACIC SURG, G S MED COLL, KEM HOSP, PAREL, BOMBAY-400 012 \*\*INDIA  
Journal: Journal of Postgraduate Medicine (Bombay) 26 ( 3 ): p 155-161 1980  
ISSN: 0022-3859  
Document Type: Article  
Record Type: Abstract  
Language: ENGLISH

Abstract: Cases (15) of mitral stenosis (MS) and 10 cases of mitral regurgitation (MR) before and after corrective surgery were studied using an impedance cardiograph. Certain characteristics of  $dz/dt$  [time derivative of impedance] have form varied significantly in these cases as compared to similar observations in normal individuals and patients suffering from other forms of heart diseases. A new non-invasive modality for the diagnosis of mitral valvular diseases and for follow-up of such cases after corrective surgery is presented.

12/7,K/9 (Item 1 from file: 73)

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EMBASE

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0081188100 EMBASE No: 2006250566

Development of predictive equations for the calculation of body composition by impedanciometry

Desarrollo de ecuaciones predictivas para el calculo de composicion corporal por impedanciometria  
Bellido D.; Carreira J.

Endocrinologia Y Nutricion, Hospital Arquitecto Marcide, Ferrol, Spain; C/ Hospital no 29-31 (4o-A), 15401-Ferrol, La Coruna, Spain

Author email: diego; bellido@arrakis.es

Corresp. Author/Affil: Bellido D.; C/ Hospital no 29-31 (4o-A), 15401-Ferrol, La Coruna, Spain

Corresp. Author Email: diego; bellido@arrakis.es

Revista Espanola de Obesidad ( Rev. Esp. Obesidad ) ( Spain ) March 1, 2006 , 4/2 (97-106)

ISSN: 1696-6112

Document Type: Journal ; Review Record Type: Abstract

Language: Spanish Summary language: English; Spanish

Number of References: 21

Corporal composition analysis is an important tool in the initial approach and follow-up of pathologies in which variations in different compartments and compounds of body represent additional risk factors or influence the response to different treatments. In the particular case of obesity, a chronic disease, the determination of fat mass and fat free mass is fundamental in the initial and follow up evaluation of obese patients. Techniques that measure the different compartments are not available in the real clinical practice; we must use methods that measure one compartment or characteristic of the body, and by means of the development of mathematic formulas to estimate the different body compartments. The development of mathematical equations based in bio- impedance analysis adapted to different populations adjusted by age, sex, body mass index, etc., is useful in the clinical practice. Multiple regression analysis is used to develop these equations; the right election of variables, adjusted model, and post hoc validation may produce equations useful in clinic and epidemiological areas. In this article, we review the methodology for the development of multiple regression equations for the analysis of corporal composition with bio-impedance, and the validation of these equations with gold Standard methods using graphic and numeric approaches.

12/7,K/10 (Item 2 from file: 73)

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EMBASE

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0081129773 EMBASE No: 2006191643

Effects of radix astragali in ameliorating cardiovascular function

Sai D.; Li S.-Q.; Li D.-H.; Li S.-Y.; Wang Y.-Q.; Song J.-M.; Li S.-Q.

Institute of Geriatrics, Jinzhou Medical College, Jinzhou 121001 Liaoning Province, China

Corresp. Author/Affil: Sai D.; Institute of Geriatrics, Jinzhou Medical College, Jinzhou 121001 Liaoning



Province, China

Chinese Journal of Clinical Rehabilitation ( Chin. J. Clin. Rehab. ) ( China ) March 20, 2006 , 10/11 (21-23)

CODEN: ZLKHA ISSN: 1671-5926

Document Type: Journal ; Article Record Type: Abstract

Language: Chinese Summary language: English; Chinese

Number of References: 5

**Aim:** To observe the clinical effect of radix astragali on patients with cardiovascular disease so as to provide scientific basis for correct clinical application. **Methods:** The experiment was conducted from June 2003 to December 2004. Retired military soldiers of Entertainment Center of Chinese PLA living in Jinzhou, teachers in universities of Jinzhou as well as cadres, workers and residents of Jinzhou were took as observation objects. According to the diagnosis standard of elderly people with cardiovascular disease made by Gerontology Branches of Chinese Medical Association, 54 patients with cardiovascular disease were selected. Patients all orally took radix astragali at the dose of 50 g/d three times a day with one month as a progress (Materials were washed with distilled water, and then dried and crashed into powder, which was sifted and put into the capsules for patients to take orally). **Changes of clinical aging index, clinical expression, electrocardiogram, impedance cardiogram, biochemical indicator, blood rheology etc. in patients were observed three progresses after the administration. Results:** Totally 54 patients were involved in the analysis of results, and no subject withdrew from the experiment. 1 Changes of clinical symptoms in patients after drug-taken: Of 54 patients who had taken drugs, clinical symptoms of 4 patients (7%) disappeared and that in 36 patients (67%) changed to some degree, 14 patients (26%) without changes, the total efficient rate was 74.1%. 2 Changes of electrocardiogram and impedance cardiogram of patients after drug-taken: After the administration, there were 1 patient with inefficient sinus bradycardia, 2 patients with acceleration, 1 patients with atrial premature beat and ventricular premature beat and 4 patients with symptoms disappeared; Three patients with inefficient myocardial ischemia, 22 patients with amelioration. The stroke volume (SV), stroke index (SI), cardiac output (CO) and cardiac index (CI) in patients after administration were increased than those before administration ( $P < 0.05$ ) and the pre-ejection/left ventricular ejection time (PEP/LVET) were lower than those before administration ( $P < 0.05$ ). 3 Changes of blood lipid and blood rheology in patients after administration: The serum triacylglycerol, high-density lipoproteins cholesterol (HDL-C) after administration were higher than those before administration; Cholesterol (Ch) and low-density lipoprotein (LDL) were lower than those before administration; The blood sedimentation rate (BSR) and hematocrit (HMT) after administration were higher than those before administration, while the whole blood specific viscosity 1/hematocrit and the serum specific viscosity were lower than those before administration. **Conclusion:** Radix astragali is a better herb medicine in delaying senescence as well as treating cardiovascular disease, which is worthy to be spreaded and applied in the clinical treatment practice.

12/7,K/11 (Item 3 from file: 73)

Fulltext available through: [STIC Full Text Retrieval Options](#)  
EMBASE

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0073744802 EMBASE No: 1988205695

Principal component analysis of multiple noninvasive blood flow derived signals

Paneraí R.B.; Ferreira A.L.A.S.; Brum O.F.

Department of Angiology, University Hospital of the Federal University of Rio de Janeiro, Rio de Janeiro 21944, Brazil  
Corresp. Author/Affil: Panerai Ronney B.: Federal Univ of Rio de Janeiro, Braz, Federal Univ of Rio de Janeiro, Braz

IEEE Transactions on Biomedical Engineering ( IEEE TRANS. BIOMED. ENG. ) ( United States ) July 1, 1988, 35/7 (533-538)

CODEN: IEBEA ISSN: 0018-9294

Item Identifier (DOI): [10.1109/10.4582](https://doi.org/10.1109/10.4582)

Document Type: Journal ; Article Record Type: Abstract

Language: English Summary language: English

Number of References: 25

Ultrasonic measurements of blood velocity waveforms from the femoral and tibial posterior arteries were analyzed by principal component analysis (PCA) simultaneously with the first derivatives of electrical impedance signals ( $dZ/dt$ ) from the calf of normal subjects and patients with peripheral arterial disease. The three non-invasive measurements were performed separately and recorded on magnetic tape together with the electrocardiogram (ECG). After low-pass filtering at 30 Hz, the signals were digitized at 200 samples/s, synchronized by the R wave of the ECG, and coherently averaged using at least 50 cardiac cycles with uniform heart rates ( $\pm 10$  percent) for each type of signal. For an ensemble of 99 waveforms corresponding to 33 lower limbs of an initial population of 23 patients, the first six principal components account for 96.5 percent of the total signal variance. Automatic identification of patients with significant arterial occlusions ( $>50$  percent) was most accurate with the coefficients of the first principal component of the blood velocity signals of the tibial posterior artery and the third principal component of  $dZ/dt$ , resulting in a diagnostic precision, sensitivity, and specificity of 100 percent. Although these results cannot be automatically extrapolated to other patient populations, the use of PCA of multiple physiological waveforms is presented as a powerful method likely to be incorporated in future intelligent medical instruments.

12/7,K/24 (Item 7 from file: 2)

INSPEC

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01946211 INSPEC Abstract Number: B76035169

Title: The physiological events associated with changes in the thoracic electrical impedance during systole

Author Claridge, G.B.; Girling, M.; Thompson, F.D.; Joeekes, A.M.

Author Affiliation: Inst. of Urology, London, UK

Conference Title: Proceedings of the Conference on the Applications of Electronics in Medicine p. 97-8

Publisher: IERE, London, UK

Publication Date: 1976 Country of Publication: UK x+396+5 (Suppl.) pp.

ISBN: 0 903748 28 2

Conference Sponsor: IERE; Biological Engng. Soc.; Hospital Physicists Assoc.; IEE; IEEE; Inst. Phys. Royal Soc. Medicine

Conference Date: 6-8 April 1976 Conference Location: Southampton, Hants., UK

Language: English Document Type: Conference Paper (PA)

Treatment: Experimental (X)

Abstract: The small fluctuations in thoracic electrical impedance which occur during the cardiac cycle have been

used to estimate the stroke volume. The result is calculated from the maximum rate of change of impedance measured between band electrodes round the neck and lower thorax. In patients without cardiovascular disease this technique correlates well with more standard estimates of cardiac output, although in patients with cardiovascular disorders the absolute correlation may not hold. However, even in this group the changes in stroke volume which occur with exercise or drug therapy follow the predicted pattern. As this non-invasive technique may prove extremely valuable in the clinical field, further work has been carried out to determine the origins of these impedance changes, and, in particular, the extent to which the systematic and pulmonary circulations contribute. ( 1 Refs)

Subfile: A B

157,K/6 (Item 6 from file: 155)

Fulltext available through: [STIC Full Text Retrieval Options](#)  
MEDLINE(R)

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15235526 PMID: 12812432

Electrical impedance tomography to measure pulmonary perfusion: is the reproducibility high enough for clinical practice?

Smit H J; Handoko M L; Vonk Noordegraaf A; Faes Th J C; Postmus P E; de Vries P M J M; Boonstra A

Department of Pulmonary Medicine, VU University Medical Center, Amsterdam, The Netherlands.

HJ.Smit@VUmc.nl

Physiological measurement ( England ) May 2003 , 24 (2) p491-9 , ISSN: 0967-3334--Print Journal Code: 9306921

Publishing Model Print

Document type: Clinical Trial; Controlled Clinical Trial; Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

A possible clinical application of electrical impedance tomography (EIT) might be to monitor changes in the pulmonary circulation, provided the reproducibility of the EIT measurement is adequate. The purpose of this study was threefold: the intra- and inter-investigator variability of repeated measurements was investigated. Three different regions of interest (ROI) were analysed to assess the optimal ROI. Twenty-four healthy subjects and six patients were included. The Sheffield applied potential tomograph (DAS-01P, IBEES, Sheffield, UK) was used. Electrodes were attached by investigator A, and duplicate EIT measurements were performed. After detachment and 45 min of rest, the protocol was repeated by another investigator B, and afterwards by the initial investigator A. Three ROIs were analysed: whole circle, 'inner half circle' and contour. The mean difference in impedance changes between observers is presented in arbitrary units (AU) +/- SD. Finally, the influence of age, body composition and sex on the EIT result was examined. For the contour ROI, the mean difference for the intra-investigator situation was  $-1.44 \times 10(-2) \pm 18.45 \times 10(-2)$  AU ( $-0.7 \pm 9.0\%$ ), and was  $5.46 \times 10(-2) \pm 21.66 \times 10(-2)$  AU ( $2.7 \pm 10.8\%$ ) for the inter-investigator situation. The coefficient of reproducibility of the intra- and inter-investigator reproducibility varied between 0.89 and 0.97 for all ROIs ( $P < 0.0001$ ). There is a relation between impedance change and age (correlation coefficient  $r = -0.63$ ,  $P < 0.01$  for contour ROI), and between impedance change and body mass index (BMI) ( $r = -0.53$ ,  $P < 0.05$ ). We found a significant difference in mean impedance change between groups of males and females. In conclusion, EIT results are highly reproducible when performed by the same investigator as well as by two different investigators.

Record Date Created: 20030618

Record Date Completed: 20040116

Descriptors: \*Electric Impedance--diagnostic use--DU; \*Pulmonary Circulation --physiology--PH; \*Pulmonary Disease, Chronic Obstructive --radiography--RA; \*Tomography--methods--MT; \*Tomography--standards--ST

^15/7,K/9 (Item 9 from file: 155)

Fulltext available through: [STIC Full Text Retrieval Options](#)

MEDLINE(R)

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10712262 PMID: 8218624

Comparative measures of systolic ejection during treadmill exercise by impedance cardiography and Doppler echocardiography.

Kizakevich P N; Teague S M; Nissman D B; Jochem W J; Niclou R; Sharma M K

Research Triangle Institute, Biomedical Engineering Program Office, Research Triangle Park, NC 27709.

Biological psychology (NETHERLANDS ) Aug 1993 , 36 (1-2) p51-61 , ISSN: 0301-0511--Print Journal

Code: 0375566

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Measurements of systolic ejection dynamics by impedance cardiography were compared with simultaneous Doppler echocardiography in normal subjects and coronary artery disease patients. Patients with chest pain admitted for elective coronary angiography were monitored by simultaneous impedance cardiography and Doppler echocardiography before, during, and after treadmill exercise. Ensemble-averaged ECG, impedance cardiogram (ICG), the first derivative of ICG ( $dZ/dt$ ), and Doppler waveforms were analyzed to identify systolic ejection variables. The timing of aortic valve opening was well correlated ( $r = 0.78$ ) the timing of peak ejection velocity was very well correlated ( $r = 0.86$ ), and the timing of aortic valve closure was moderately correlated ( $r = 0.69$  and  $r = 0.73$ ) in these subjects. The thoracic electrical impedance acceleration and normalized impedance acceleration indices were moderately correlated with Doppler model acceleration ( $r = 0.74$ ,  $r = 0.79$ ). The impedance cardiogram waveforms are of complex origin and are related to both aortic blood velocity and aortic blood acceleration. Users of  $dZ/dt$  timing features for determining aortic valvular events might consider alternative impedance features to improve ejection time accuracy.

Record Date Created: 19931203

Record Date Completed: 19931203

...simultaneous impedance cardiography and Doppler echocardiography before, during, and after treadmill exercise.

Ensemble-averaged ECG, impedance cardiogram (ICG), the first derivative of ICG ( $dZ/dt$ ), and Doppler waveforms were analyzed to identify systolic ejection variables. The... (

Descriptors: ; Adult; Aged; Aortic Valve--physiopathology--PP; Blood Flow Velocity --physiology--PH; Coronary Disease--diagnosis--DI; Humans; Middle Aged; Myocardial Infarction--diagnosis--DI; Myocardial Infarction--physiopathology--PP; Prospective Studies; Recurrence; Reference Values; Ventricular Function, Left--physiology--PH

^15/7,K/10 (Item 10 from file: 155)

Fulltext available through: [STIC Full Text Retrieval Options](#)

MEDLINE(R)

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09029680 PMID: 2741438

[Physical work capacity and left ventricular function assessed using an impedance cardiographic method in patients with a rheumatic mitral valve defect]

Fizicheska rabotoosposobnost i funktsiia na liavata kamera, otsenena s impedanskardiografskiia metod pri bolni s revmatichen porok na mitralnata klapa.

Terzieva L

Vutreshni bolesi ( BULGARIA ) 1989 , 28 (1) p36-41 , ISSN: 0506-2772--Print Journal Code: 0032666

Publishing Model Print

Document type: English Abstract; Journal Article

Languages: BULGARIAN

Main Citation Owner: NLM

Record type: MEDLINE; Completed

The interrelations between physical working capacity and left ventricular function were studied in 51 patients with mitral valvular disease (17 men and 34 women) by impedance cardiography. A number of physical working capacity indices and the impedance cardiographic indices of the ejection and contractile functions of the left ventricle were determined. As an approximate assessment of the left ventricular function the degree of the changes of the impedance cardiographic indices from the state of rest to physical loading was used. A better correlation was established between the physical working capacity and the increase if the impedance cardiographic indices of the ejection and contractile left ventricular functions from the state of rest to physical loading than with the same indices determined in the state of rest only. The impedance cardiographic indices of the left ventricular function by physical loading increase to a lesser degree in patients with diminished left ventricular function at rest (combined mitral valvular disease) while in the patients with normal left ventricular function at rest ("pure" mitral stenosis) the changes are like those in healthy persons.

Record Date Created: 19890809

Record Date Completed: 19890809

Descriptors: \*Cardiography, Impedance; \*Disability Evaluation; \*Heart--physiopathology --PP; \*Mitral Valve Stenosis--diagnosis--DI; \*Plethysmography, Impedance; \*Rheumatic Heart Disease--diagnosis--DI ; Adult; Chronic Disease; Exertion; Heart Failure--diagnosis --DI; Heart Failure--physiopathology--PP; Heart Ventracles --physiopathology--PP; Hemodynamics; Humans; Middle Aged; Mitral Valve...

Named Person:

^15/7,K/11 (Item 11 from file: 155)

Fulltext available through: [STIC Full Text Retrieval Options](#)

MEDLINE(R)

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06577645 PMID: 7315952

Evaluation of myocardial performance during wheelchair ergometer exercise.

Wilde S W; Miles D S; Durbin R J; Sawka M N; Suryaprasad A G; Gotshall R W; Glaser R M

American journal of physical medicine ( UNITED STATES ) Dec 1981 , 60 (6) p277-91 , ISSN: 0002-9491--Print Journal Code: 0370503

Publishing Model Print

Document type: Journal Article; Research Support, U.S. Gov't, Non-P.H.S.

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Since a relatively high incidence of cardiovascular disease is associated with wheelchair confinement, exercise stress testing techniques should be utilized to assess myocardial performance of wheelchair-dependent individuals.

Therefore, the purpose of this study was to apply the techniques of impedance cardiography to graded wheelchair-type exercise. For this, 9 wheelchair-dependent volunteers completed a progressive intensity, discontinuous test on a wheelchair ergometer (WERG) at power outputs (PO) of 10, 20, and 30 watts. An impedance cardiogram (ZCG), electrocardiogram (ECG), and phonocardiogram (PCG) were recorded for 15 sec immediately following steady state exercise. Stroke volume ( $\Delta V$ ) calculated from the ZCG was multiplied by steady state heart rate (HR) to estimate cardiac output (Q). The simultaneous recording of the ZCG, ECG, and PCG permitted calculation of systolic time intervals and impedance cardiography contractility indices. Values for  $\Delta V$ , HR, Q, arteriovenous oxygen difference, systolic and diastolic blood pressure, mean systolic ejection rate, the first

derivative of the impedance change, and the Heather Index increased with increments in PO. The Q-S2 interval, left ventricular ejection time (LVET), the pre-ejection period (PEP), the ratio of PEP to LVET, and the R-Z interval decreased with increases in exercise intensity. A linear relationship was found between Q and oxygen uptake which was similar to that reported by other investigators for arm exercise. These data indicate that impedance cardiography may be used in conjunction with electrocardiography and phonocardiography for the non-invasive assessment of myocardial performance during wheelchair exercise testing.

Record Date Created: 19820225

Record Date Completed: 19820225

...Q, arteriovenous oxygen difference, systolic and diastolic blood pressure, mean systolic ejection rate, the first derivative of the impedance change, and the Heather Index increased with increments in PO. The Q-S2 interval, left ventricular ejection time (LVET), the... (

Descriptors: ; Adult; Arm; Cardiac Output; Cardiovascular Diseases-- diagnosis--DI; Humans; Myocardial Contraction

Named Person:

^15/7,K/16 (Item 2 from file: 5)

Biosis Previews(R)

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18978462 Biosis No.: 200600323857

Deep-vein thrombosis determination apparatus

Author: Miyoshi Tsutomu; Izumi Shuichi; Takehara Katsumi; Fukuda Yoshinori

Author Address: Tokyo, Japan\*\*Japan

Journal: Official Gazette of the United States Patent and Trademark Office Patents DEC 27 2005 2005

ISSN: 0098-1133

Document Type: Patent

Record Type: Abstract

Language: English

Abstract: An apparatus is provided which allows a subject to determine by himself/herself whether or not he/she is apt to develop a deep-vein thrombosis in a region of a lower limb in a simple manner. A variation between the

bioelectric impedance values measured respectively before and after a posture change is compared with a reference value. The posture change includes a bending and stretching exercise, a bending and stretching in knees in a seated position and a repeating of standing-up and sitting-down motion. Alternatively, a blood storage capacity of the lower limb region may be estimated from a gradient of bioelectric impedance represented by a variation thereof per unit time to determine whether or not the subject is apt to develop deep-vein thrombosis in the lower limb region.

DESCRIPTORS:

Diseases: ...vascular disease, diagnosis

Mesh Terms:

15/7,K/22 (Item 8 from file: 5)

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Biosis Previews(R)

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09270986 Biosis No.: 198886110907

IMPEDANCE CARDIOGRAPHY FOR ESTIMATING CARDIAC VALVULAR DISEASE AT REST AND AFTER EXERCISE

Author: NAGAE T (Reprint)

Author Address: DEP SURG, TOKYO MED COLL\*\*JAPAN

Journal: Journal of Tokyo Medical College 46 ( 3 ): p 494-507 1988

ISSN: 0040-8905

Document Type: Article

Record Type: Abstract

Language: JAPANESE

Abstract: Impedance cardiography (Noninvasive continuous cardiac output monitor, NCCOM) was used to estimate cardiac function in 67 subjects of cardiac valvular disease perioperatively at rest and immediately after a single load exercise on a treadmill. 1) A comparison was made between cardiac output values determined by thermodilution and impedance cardiography and good correlation was observed at rest ( $r=0.87$ ) in 18 subjects, excluding case of aortic regurgitation. 2) In the group of aortic regurgitation, the cardiac output value reflected the regurgitant volume, and it was significantly increased in comparison to the group of normal subjects. Conversely, the group with mitral regurgitation was decreased. The values returned to the normal range at rest after valve replacement. 3) In the mitral stenosis group, the values showed low output, and postoperatively (opened mitral commissurotomy or mitral valve replacement), they were improved at rest. 4) The percent change in stroke index values obtained by impedance cardiography at rest and immediately after treadmill exercise (4km/h, 10% grade, 10 minutes) were divided into three groups, that is the group with increase, the group with no change and the group showing a decrease. In the group with increase,  $\dot{V}O_2$  max, which was examined by multiple load ergometer exercise, was higher than in the group with no change ( $p < 0.05$ ) and in the group showing a decrease ( $p < 0.005$ ). 5) The group which underwent mitral valve replacement leaving the posterior cusp in place lead a better cardiac function than the group in which the posterior cusp was not preserved. 6) Echocardiography, which was also employed for evaluation of myocardial function, showed improvement after operation, and it was useful to compare with impedance cardiography. Impedance Cardiography (NCCOM) was suitable to examine the reserve left ventricular function noninvasively, especially the present change in stroke index.

^15/7,K/25 (Item 2 from file: 73)

Fulltext available through: [STIC Full Text Retrieval Options](#)

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0078934304 EMBASE No: 2002097990

Bioelectrical impedance analysis for assessment of severity of illness in pediatric patients after heart surgery

Shime N.; Ashida H.; Chihara E.; Kageyama K.; Katoh Y.; Yamagishi M.; Tanaka Y.

Department of Anesthesiology, Kyoto Prefect. Univ. of Medicine, Kawaramachi-Hirokoji, Kamigyo-ku, Kyoto 602-8566, Japan

Corresp. Author/Affil: Shime N.: Department of Anesthesiology, Kyoto Prefect. Univ. of Medicine, Kawaramachi-Hirokoji, Kamigyo-ku, Kyoto 602-8566, Japan

Corresp. Author Email: shime@koto.kpu-m.ac.jp

Critical Care Medicine ( Crit. Care Med. ) ( United States ) March 26, 2002 , 30/3 (518-520)

CODEN: CCMDC ISSN: 0090-3493

Document Type: Journal ; Article Record Type: Abstract

Language: English Summary language: English

Number of References: 10

**Objective:** To investigate whether perioperative changes in bioelectrical impedance reflect the severity of illness in pediatric patients after heart surgery. **Design:** Prospective, controlled study. **Setting:** University-affiliated children's hospital. **Patients:** A total of 107 patients admitted to a pediatric intensive care unit after congenital heart surgery. **Interventions:** None. **Measurements and Main Results:** Single frequency (50 kHz) bioelectrical impedance was measured in the lower extremities before surgery and immediately, 16 hrs, and 40 hrs after admission (D0, D1, D2) to the pediatric intensive care unit. Postoperative changes in bioelectrical impedance were assessed by calculating values relative to the preoperative data (bioelectrical impedance ratio). These bioelectrical impedance ratios at D0 in both the nonsurviving and surviving patients were  $0.84 \pm 0.06$  and  $0.85 \pm 0.01$  (mean  $\pm$  SE), respectively, indicating that the initial decrease caused by surgical stress itself was not directly related to the prognosis. The bioelectrical impedance ratio showed an increase toward preoperative values in surviving patients ( $0.94 \pm 0.02$ ) at D1, and they showed a sustained decrease ( $0.70 \pm 0.06$ ) in nonsurviving patients. Patients with a bioelectrical impedance ratio at D1 of  $<0.8$  showed a higher mortality (25%) compared with those patients with a day-1 bioelectrical impedance ratio of  $\geq 1.0$  (0%). The duration of the stay in the pediatric intensive care unit, mechanical ventilation, and inotropic support were all significantly longer in the patients with the lower bioelectrical impedance ratio. **Conclusions:** Measurement of the relative changes in postoperative bioelectrical impedance, which reflects perioperative alterations in body composition, provides a quantitative estimation of the critical illness in pediatric patients after heart surgery.

**Medical Descriptors:**

\*

adolescent; article; body composition; capillary leak syndrome-- diagnosis--di; child; congenital heart disease-- congenital disorder--cn; congenital heart disease--surgery--su; critical illness--diagnosis--di; edema--diagnosis--di; female; human; impedance; infant; major clinical study; male; mortality; newborn; outcomes research; pediatric surgery...

**Orig. Descriptors:**



15/7,K/50 (Item 3 from file: 2)

Fulltext available through: [STIC Full Text Retrieval Options](#)

INSPEC

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03116681 INSPEC Abstract Number: A83097616, B83051971

Title: Spectral analysis of electrical impedance measurements on the lower limbs

Author Filho, W.S.; Brum, O.F.; Panerai, R.

Author Affiliation: Brazilian Navy Res. Inst., Rio de Janeiro, Brazil

Journal: IEEE Transactions on Biomedical Engineering vol.BME-30, no.7 p. 387-92

Publication Date: July 1983 Country of Publication: USA

CODEN: IEBEAX ISSN: 0018-9294

U.S. Copyright Clearance Center Code: 0018-9294/83/0700-0387\$01.00

Language: English Document Type: Journal Paper (JP)

Treatment: Experimental (X)

Abstract: Electrical impedance signals from the lower limbs of normal individuals and patients with atherosclerosis have been studied in the frequency domain. A current of 1 mA at 40 kHz was introduced with strip electrodes around the ankles, and voltage differences were measured with electrodes above the knee and above the current electrode of the same limb. The impedance signal  $\Delta Z$  and the ECG were recorded on magnetic tape and transferred to a digital computer. The first derivative of the impedance signal  $dZ/dt$  was calculated by numerical methods from the coherent average of at least 20  $\Delta Z$  signals, and the spectra were obtained by an FFT algorithm. For young normal individuals, only 1 percent of the  $dZ/dt$  signal energy lies above 12 Hz. Patients with arterial obstructions present a greater attenuation in the lower harmonics, stretching the 99 percent energy bandwidth to 32 Hz. Although the amplitude of some spectral components can be used for noninvasive evaluation of arterial disease with a precision of up to 90 percent, it was found that the phase spectra are very little influenced by atherosclerosis. ( 21 Refs)

Subfile: A B

15/7,K/25 (Item 4 from file: 73)

Fulltext available through: [STIC Full Text Retrieval Options](#)

EMBASE

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0072670325 EMBASE No: 1984100741

Application of impedance cardiography in critical care medicine

Schuster C.J.; Schuster H.P.

II Medizinische Klinik, Johannes Gutenberg Universität, D-6500 Mainz, Germany

Corresp. Author/Affil: II Medizinische Klinik, Johannes Gutenberg Universität, D-6500 Mainz, Germany

Resuscitation ( RESUSCITATION ) ( Ireland ) June 1, 1984 , 11/3-4 (255-274)

CODEN: RSUSB ISSN: 0300-9572

Document Type: Journal ; Review Record Type: Abstract

Language: English

In spite of good correlations between cardiac output measurements by impedance and established invasive procedures (dye- and thermo-dilution) reported by numerous authors it is doubtful until now whether calculations of stroke volume according to the formula of Kubicek et al. (1974) can provide absolutely reliable results. The origin of the  $dz/dt$  curve and influencing factors of impedance wave have to be cleared up prior to the total acceptance of impedance cardiography as a reliable method for determining non-invasive stroke volume. This is true in spite of the agreement of all authors we know, that the reproducibility of the impedance cardiography values is as good as in dye or thermo-dilution measurements. However, for patient monitoring it is sometimes more important to assess the relative changes in stroke volume than to measure its absolute value. For long-term non-invasive monitoring of myocardial contractility in critically ill patients or after pharmacological interventions impedance cardiography may be recommended. Besides systolic time intervals, such as prejection time and ventricular ejection time, three more reliable parameters can be derived from the first derivative of impedance wave. Impedance plethysmography has been shown as a reliable method to diagnose deep vein thrombosis and good correlations between impedance and strain-gauge plethysmography and phlebographic findings are reported. In addition fluid volume changes in the leg, venous capacity, venous outflow and arterial inflow may be determined by impedance plethysmography in a simple way. There is no doubt that alterations in the fluid content of biological tissue may be measured by impedance technique. However, correlations between changes in the transthoracic impedance and fluid content of the thorax can be quantified only in a single subject which serves as its own control. Overall standardization is not possible. The reason for inter-individual differences in the thoracic impedance at a given reduction of body water are due to anatomical differences, intrapulmonary air volume and pressure, location of the electrodes, electrical conductivity of the tissue and, above all, due to the position of the body. Therefore if transthoracic impedance is determined sequentially measurements must be performed with special attention to the position of the body to get reproducible results. Rapid infusion of colloids or blood transfusion may decrease transthoracic impedance due to intravascular volume expansion even at a net fluid lost during forced furosemide-induced diuresis or extracorporeal hemodialysis. Respecting these limitations impedance cardiography may serve as a simple and reliable method for continuous monitoring of intrathoracic fluid volume with the advantage of its simple and non-invasive nature.

19/7,K/31 (Item 1 from file: 65)

Inside Conferences

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00501398 Inside Conference Item ID: CN004839020

The Impedance Ration (O:  $dz/dt$ ) as a New Diagnostic Parameter in Myocardial Failure  
Horstmann, E.

Conference: Thoracic impedance measurements in clinical cardiology - International symposium  
P: 69-72

Stuttgart, New York, Georg Thieme, 1994

ISBN: 3131195010; 0865775567

Language: English Document Type: Conference Selected papers

Editor: Winter, U. J.

Location: Cologne, Germany

Date: Mar 1991 ( 199103 ) ( 199103 )

The Impedance Ration (O:  $dz/dt$ ) as a New Diagnostic Parameter in Myocardial Failure

^23/7,K/3 (Item 3 from file: 155)

Fulltext available through: [STIC Full Text Retrieval Options](#)

MEDLINE(R)

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16338739 PMID: 15677875

Automated impedance cardiography for detecting ischemic left ventricular dysfunction during exercise testing.

Scherhag A; Pflieger S; Garbsch E; Buss J; Sueselbeck T; Borggrefe M

I. Medical Clinic, University Hospital Mannheim, Faculty of Clinical Medicine Mannheim, University of Heidelberg, Mannheim, Germany. [armin.scherhag@roche.com](mailto:armin.scherhag@roche.com)

Kidney & blood pressure research ( Switzerland ) 2005 , 28 (2) p77-84 , ISSN: 1420-4096--Print Journal Code: 9610505

Publishing Model Print-Electronic

Document type: Clinical Trial; Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Automated impedance cardiography (ICG) is an attractive method for noninvasive hemodynamic evaluation. The objective of our study was to evaluate the feasibility and diagnostic value automated ICG in patients with suspected coronary artery disease (CAD). We measured stroke index (SI) and cardiac index (CI) in 65 patients with suspected CAD at rest and during bicycle exercise testing. All patients underwent subsequent cardiac catheterization including coronary angiography (CA). Depending on the results of CA, patients were divided into three groups, patients without significant CAD (group 0), single vessel disease (group 1) or multivessel disease (group 2-3). In a subset of 20 patients, automated ICG was compared to measurements of CI by the thermodilution (TD) method. Results: There were no significant differences in SI and CI at baseline between the three groups. At 75- and 100-watt exercise, patients in group 2-3 showed significantly lower mean values of SI and CI as compared to patients of group 0 and group 1 (all  $p < 0.05$ ), indicating exercise-induced ischaemic left ventricular (LV) dysfunction. Three patients had to be excluded because of inappropriate quality of the ICG signals during exercise. Comparison of automated ICG with TD measurements of CI showed good correlations between both methods at rest ( $r = 0.73$ ) and during exercise ( $r = 0.89-0.91$ ). Conclusions: We conclude that hemodynamic monitoring by automated ICG is both feasible and practical during exercise testing. Automated ICG can provide reliable and valuable additional diagnostic information on LV function during exercise which is helpful for selecting those patients for angiography who are likely to benefit from coronary interventions.

Record Date Created: 20050415

Record Date Completed: 20050725

Date of Electronic Publication: 20050127

Automated impedance cardiography (ICG) is an attractive method for noninvasive hemodynamic evaluation. The objective of our study was to evaluate the feasibility and diagnostic value automated

Descriptors: \*Cardiography; Impedance; \*Exercise Test; \*Myocardial Ischemia --diagnosis--DI; \*Ventricular Dysfunction, Left--diagnosis--DI ; Adult; Aged; Coronary Artery Disease--diagnosis--DI; Coronary Artery Disease--physiopathology--PP; Coronary Circulation; Feasibility Studies; Humans; Middle Aged; Myocardial Ischemia --physiopathology--PP; Thermodilution; Ventricular Dysfunction, Left --physiopathology--PP

Named Person:

FULLTEXT

? show files

[File 9] Business & Industry(R) Jul/1994-2008/Aug 26  
(c) 2008 The Gale Group. All rights reserved.

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*\*File 148: The CURRENT feature is not working in File 148. See HELP NEWS148.*

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*\*File 624: Homeland Security & Defense and 9 Platt energy journals added Please see HELP NEWS624 for more*

[File 635] Business Dateline(R) 1985-2008/Sep 03  
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[File 135] NewsRx Weekly Reports 1995-2008/Aug W4  
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(c) 2008 The Gale Group. All rights reserved.

[File 647] CMP Computer Fulltext 1988-2008/Aug W2  
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[File 674] Computer News Fulltext 1989-2006/Sep W1  
(c) 2006 IDG Communications. All rights reserved.

*\*File 674: File 674 is closed (no longer updates).*

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; d s
Set      Items      Description
S1      1226115     S (VARY??? OR VARIE? ? OR VARIA? OR ADJUST? OR CHANGE? ? OR CHANGING OR
ADAPT? OR MODIF? OR RECALIBRAT??? OR ALTER?) (7N) (VALUE? ? OR VALUATION? OR COUNT? ? OR
INDEX? OR INDICES OR QUANTII? OR NUMBER? ? OR AMOUNT? ? OR AVERAGE? ? OR MEDIAN? ? OR
EXTENT? OR MAGNITUDE?)
S2      386848      S DERIVATIVE?
S3      36155       S IMPEDANCE? OR BIOIMPED?
S4      26          S DZ (DT
S5      28307       S ELECTRIC?(3N) (PULSE? ? OR PULSING OR IMPULS? OR PULSATION? OR COUNTER
PULS? OR REACTANC? OR RESISTANC? OR RESISTIV?)
S6      343         S (S1 OR S2) (7N) (S3 OR S5)
S7      841493      S (PATHO())PHYSIO? OR PATHOPHYSIO? OR PATHOLOG? OR DISEASE? OR DAMAGE? OR
RUPTUR? OR HURT? OR DESTRUCT? OR INJUR? OR IMPAIR? OR HARM? OR WOUND? OR TRAUMA? OR
DEFECT?) (10N) (APPRAIS??? OR ASSESS? OR DETERMIN? OR EVALUAT? OR JUDG? OR ESTIMAT? OR
IDENTIF? OR ASCERTAIN? OR CHECK? OR DIAGNOS? OR MEASUR? OR SCORE? ? OR SCORING OR RATE? ?
OR RATING?)
S8      2           S S6 (7N) S7
S9      8           S S6 (70N) S7
S10     83106       S MYOCARD?
S11     7           S S6 AND S10
S12     1899358     S HEART? OR CARDIO? OR CARDIA? OR CARDIU? OR CORONAR? OR ENDOCARD? OR
PERICARD? OR EPICARD?
S13     404890      S MUSCLE? OR MUSCUL?
S14     59          S S6 AND S12
S15     48          S S14 NOT (S11 OR S9)
S16     41          RD (unique items)
S17     11          S S6 AND S13
S18     1072        S (S3 OR S5) (70N) S7
S19     31          S S18 (70N) S1
S20     26          RD (unique items)
S21     167         S S18 AND S1
S22     132         S S21 NOT (S11 OR S9 OR S14 OR S19 OR S17)
S23     108         RD (unique items)
S24     82299       S S7 (15N) (S10 OR S12 OR S13)
S25     109         S S24 (30N) (S3 OR S5)
S26     101         S S25 NOT (S23 OR S11 OR S9 OR S14 OR S19 OR S17)
S27     77          RD (unique items)

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4/3,K/11 (Item 1 from file: 149)

TGG Health&Wellness DB(SM)

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01783565 Supplier Number: 20970663 (USE FORMAT 7 OR 9 FOR FULL TEXT )

Invasive and noninvasive hemodynamic monitoring of patients with cerebrovascular accidents.

Velmahos, George C.; Wo, Charles C.J.; Demetriades, Demetrios; Bishop, Michael H.; Shoemaker, William C.  
The Western Journal of Medicine , v169 , n1 , p17(6)

July ,

1998

Publication Format: Magazine/Journal; Refereed

ISSN: 0093-0415

Language: English

Record Type: Fulltext; Abstract Target Audience: Professional

Word Count: 3120 Line Count: 00287

...the impedance waveform for each heartbeat (dZ), and the first derivative of the impedance waveform (dZ/dt). The filters for signal processing used an all-integer-coefficient filtering technology that allows fast...tracing: the beginning of systole, the opening of the aortic valve, the maximum ventricular contraction (dZ/(dt.sub.max)), closing of the aortic valve, and mitral valve opening. The ECG signal is...

...waves, which then are used to reconstruct the QRST signal. The maximum value of the dZ/dt signal during the cardiac cycle, dZ/(dt.sub.max) was calculated and displayed. A touch-screen interface displayed the real-time waveforms...

9/3,K/1 (Item 1 from file: 148)

Gale Group Trade & Industry DB

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09022834 Supplier Number: 18758357 (USE FORMAT 7 OR 9 FOR FULL TEXT )

Instrumental evaluation of skin irritation.

Rizvi, Perveen Y.; Morrison, Boyce M., Jr.; Grove, Mary Jo; Grove, Gary L.

Cosmetics and Toiletries , v111 , n9 , p39(4)

Sep , 1996

ISSN: 0361-4387

Language: English

Record Type: Fulltext

Word Count: 1940 Line Count: 00163

...was significantly harsher than either 6-EO or 10-EO; the latter two behaved similarly.

Impedance: Figure 4 shows the net change in Ollmar Index as measured with the SCIM. The results generally agree well with the water-loss rates measured. They clearly show that SLS produced significantly greater damage than any of the three ethoxylated analogs. These findings also show significant differences between 3...

^11/3,K/2 (Item 2 from file: 149)

TGG Health&Wellness DB(SM)

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02232387 Supplier Number: 104211732 (USE FORMAT 7 OR 9 FOR FULL TEXT )

Assessment of myocardial lesion size during in vitro radio frequency catheter ablation.(Author Abstract)

He, Ding Sheng; Bosnos, Michael; Mays, Mary Z.; Marcus, Frank  
IEEE Transactions on Biomedical Engineering , 50 , 6 , 768(9)

June ,  
2003

Document Type: Author Abstract Publication Format: Magazine/Journal; Refereed

ISSN: 0018-9294

Language: English

Record Type: Abstract Target Audience: Academic; Professional; Trade

Assessment of myocardial lesion size during in vitro radio frequency catheter ablation.(Author Abstract)

Author Abstract: ...analysis. We found that there are irreversible changes in the reactive and resistive components of impedance that occurred during tissue ablation. The irreversible changes of these components are greater in magnitude, and correlate better with the size of lesions than that of impedance alone that is...

Text:

^16/3,K/3 (Item 3 from file: 16)

Gale Group PROMT(R)

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06729099 Supplier Number: 56470191 (USE FORMAT 7 FOR FULLTEXT)

E-Z-EM, Inc., Awarded Patent for Extravasation Detection Technique; Technology First Used in Company's PercuPump CT Contrast Media Injectors.

Business Wire , p 0522

Oct 18 , 1999

Language: English Record Type: Fulltext

Document Type: Newswire; Trade

Word Count: 747

-

...there is an extravasation, the pool of fluid that collects at the injection site will change the impedance value detected by an adhesive electrode EDA(TM) patch (patent pending). Prior to this invention, the...

...Its wholly-owned subsidiary, AngioDynamics, Inc., manufactures three types of medical devices angiography, therapeutic and coronary. Another subsidiary, Enteric Products, Inc., develops, manufactures and markets tests for detection of the ulcer...

16/3,K/15 (Item 4 from file: 149)

TGG Health&Wellness DB(SM)

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02097515 Supplier Number: 90469713 (USE FORMAT 7 OR 9 FOR FULL TEXT )

Imaging of thoracic blood volume changes during the heart cycle with electrical impedance using a linear spot-electrode array.(Abstract)

Hoetink, A.E.; Faes, Th.J.C.; Marcus, J.T.; Kerkkamp, H.J.J.; Heethaar, R.M.  
IEEE Transactions on Medical Imaging , 21 , 6 , 653(9)

June ,  
2002

Document Type: Abstract Publication Format: Magazine/Journal; Refereed

ISSN: 0278-0062

Language: English

Record Type: Abstract Target Audience: Academic; Trade

Imaging of thoracic blood volume changes during the heart cycle with electrical impedance using a linear spot-electrode array.(Abstract)

Author Abstract: ...useful information about the changes in blood volume that occur in the thorax during the heart cycle. The aim of this paper is to present a new (tomographic-like) method to... ..sectional surface area changes of the aorta, the vena cava, the carotid arteries, and the heart. This paper shows that the different sources of the thoracic EI waveform may be separated in time and location on the thoracic surface and that aortic volume changes may be estimated accurately.

Index Terms--Electrical impedance, electrode array, impedance cardiography, impedance imaging.

Text:

16/3,K/16 (Item 5 from file: 149)

TGG Health&Wellness DB(SM)

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01783565 Supplier Number: 20970663 (USE FORMAT 7 OR 9 FOR FULL TEXT )

Invasive and noninvasive hemodynamic monitoring of patients with cerebrovascular accidents.

Velmahos, George C.; Wo, Charles C.J.; Demetriades, Demetrios; Bishop, Michael H.; Shoemaker, William C.  
The Western Journal of Medicine , v169 , n1 , p17(6)

July ,  
1998

Publication Format: Magazine/Journal; Refereed

ISSN: 0093-0415

Language: English

Record Type: Fulltext; Abstract Target Audience: Professional

Word Count: 3120 Line Count: 00287

Author Abstract: ...electrical bioimpedance device. Values were recorded and temporal patterns of survivors and nonsurvivors were described. Cardiac indices obtained simultaneously by the 2 techniques were compared. Of the 17 patients, 11 (65%) died. Survivors had higher values than nonsurvivors for mean arterial pressure, cardiac index, and oxygen saturation, delivery, and consumption at comparable times. Cardiac index values, as measured by invasive and noninvasive methods, were correlated. We concluded that hemodynamic...

Text:



CI = cardiac index ECG = electrocardiographic ED = emergency department (PtcO<sub>2</sub>) = partial pressure of transcutaneous oxygen (SaO<sub>2</sub>)

...respiratory rate, and mental status. Subsequent circulatory monitoring is often limited to blood pressure and heart rate recording, plus occasional arterial blood gas measurements and determinations of hematocrits and urinary output...

...cerebral blood flow, oxygenation, and metabolism. Except in extreme conditions, the blood pressure and the heart rate are not well correlated with blood flow in acute clinical situations(1); the routine...

...rates, and logistic problems, however, prevent its being routinely used in the acute care setting.

Cardiac output monitoring by an electrical bioimpedance technique is emerging as a new method of monitoring...

...may greatly affect hemodynamic monitoring. Handelsman extensively reviewed the noninvasive electrical bioimpedance methods for measuring cardiac output and concluded that they relate changes in thoracic electrical conductivity to changes in aortic...

...accuracy and reliability of this new technology compared with the standard thermodilution method for measuring cardiac output in critically ill stroke patients shortly after admission to an ED. We also evaluated the feasibility of multiple noninvasive monitoring systems to assess the three components of circulation: cardiac function, pulmonary function, and tissue perfusion.

Patients and Methods

Patients

We studied a consecutive series...

...made during relatively stable periods when a patient did not exhibit anxiety, restlessness, or agitation. Cardiac output and cardiac index were calculated by the thermodilution technique (cardiac output computer, Model 9520A, Baxter Edwards Laboratories, Santa Ana, California). Three to five measurements were...

...values at the end of more than three expirations were averaged. At the time of cardiac output determination, arterial and mixed venous blood specimens were obtained anaerobically in heparinized syringes, stored ...

...from the saturation and hemoglobin values, with corrections made for dissolved oxygen in the plasma. Cardiac index (CI), oxygen delivery, oxygen consumption ((VO<sub>2</sub>)), and other derived variables were calculated...

...data set was taken within a two-minute period and keyed to the time of cardiac output measurement. All flow variables and

flow-derived variables were indexed to body surface area.

#### Thoracic Electrical Bioimpedance Measurement of Cardiac Index

We used a prototype model of a new thoracic electrical bioimpedance device developed for...

...electrodes were placed 5 cm inside the area defined by the injecting electrodes. Three electro-cardiographic (ECG) leads were placed across the precordium and left shoulder.

A 100-kHz, 4-mA...

...to record the ECG, the baseline impedance ( $Z_{sub.0}$ ), the impedance waveform for each heartbeat ( $dZ$ ), and the first derivative of the impedance waveform ( $dZ/dt$ ). The filters for signal processing used an all-integer-coefficient filtering technology...to reconstruct the QRS signal. The maximum value of the  $dZ/dt$  signal during the cardiac cycle,  $dZ/(dt_{sub.max})$  was calculated and displayed. A touch-screen interface displayed the real-time waveforms and calculated values; stroke volume, heart rate, cardiac output, and cardiac index were routinely calculated and displayed.(3-8)

Pulse Oximetry

A standard pulse oximeter was...

...for therapy were a mean arterial pressure of less than 80 mm of mercury, a cardiac index of less than 3 liters per minute per meter squared, a ( $PtcO_{sub.2}$ )...

...than 120 ml per minute per meter squared. The therapeutic goal was to optimize the cardiac function, pulmonary function, and tissue perfusion.

Measurements were made at frequent intervals during periods of...

...Newman-Keuls test. Linear regression analysis was used to compare the two methods of measuring cardiac output. Statistical comparisons between data obtained under different conditions were evaluated using the two-tailed...

...distributions. Differences were considered significant at probability values of less than .05.

#### Results

##### Comparison of Cardiac Index Estimated by Thermodilution and Bioimpedance

Figure 1 compares 50 paired values of simultaneously measured cardiac index by invasive thermodilution catheters with that obtained by the noninvasive bioimpedance system. Cardiac index values varied from 2 to 5 liters per minute per meter squared. The regression equation was  $Y...$

...ED. Figure 2 compares the temporal patterns of survivors and nonsurvivors for mean arterial pressure, heart rate, cardiac index, ( $PtcO_{sub.2}$ ), pulse oximetry ( $SaO_{sub.2}$ ), oxygen delivery, oxygen consumption ( $VO_{sub.2}$ ).

...and pulmonary venous admixture. In general, the survivors had higher values for mean arterial pressure, cardiac index, (PtcO.sub.2), (SaO.sub.2), oxygen delivery, and (VO.sub.2) than the nonsurvivors at comparable times after admission. The heart rate and pulmonary venous mixture were higher in those who died.

(Figure 2 ILLUSTRATION OMITTED...)

...shows the survivors' and nonsurvivors' temporal patterns for pulmonary arterial wedge pressure, mean arterial pressure, cardiac index, (PtcO.sub.2), (VO.sub.2), and oxygen delivery when the data of each variable are aligned in time before and after the cardiac index nadir. The survivors' values were generally higher in all monitored variables except the pulmonary wedge pressure.

(Figure 3 ILLUSTRATION OMITTED)

Invasive Monitoring of Cardiac Index, Oxygen Delivery, and

(VO.sub.2)

Table 2 summarizes the cardiac index, oxygen delivery, and (VO.sub.2) index for survivors and nonsurvivors of stroke obtained...

...to the ED. In general, the survivors had higher values in these variables.

TABLE 2.--Cardiac Index by Thermodilution (Cidx), Oxygen Delivery, Oxygen Consumption (('VO.sub.2)), and Transcutaneous Oximetry ((PtcO...cerebral function, (12) The traditional methods of monitoring, such as recording the arterial blood pressure, heart rate, and respiratory rate, are not well correlated with blood flow, (SaO.sub.2), or tissue perfusion as reflected by the cardiac index, pulse oximetry, or transcutaneous oximetry, respectively, (13) This emphasizes the inadequacy of the vital...

...discontinuous manner.

The availability of a new thoracic electrical bioimpedance system allows the monitoring of cardiac output in a noninvasive, continuous on-line, real-time mode. (5-8) The electrodes can...

...device include low signal:noise ratios from pleural effusions, chest tubes, pulmonary edema, severe congestive heart failure, and severe pneumonia. (3)

In this series, the correlation of the bioimpedance method with... patients with stroke on admission to the ED. Both invasive and noninvasive data show reduced cardiac output and poor tissue perfusion at the early stages after acute stroke. Survivors demonstrated better...

...and oxygen transport variables, particularly in the nonsurvivors. In general, the survivors' mean arterial pressure, cardiac index, (PtcO.sub.2), oxygen delivery, and (VO.sub.2) patterns are higher than those...

...Shoemaker WC, Appel PL, Bishop MH, Kram HB, Hardin E. Unreliability of blood pressure and heart rate to evaluate cardiac output in emergency resuscitation and critical illness. Crit Care Med 1993; 21:218-223

(2...

...Wo CCJ, Shoemaker we, Bishop MH, Wang X, Patil RS, Thangaturai D. Noninvasive estimations of cardiac output and circulatory dynamics in critically ill patients. Curr Opin Crit Care 1995; 1:211-218

(4.) Handelsman H. Measuring cardiac output by electrical bioimpedance. In: Public Health Service Reassessment. Washington (DC): US Public Health Service; 1992, pp 1-13

(5.) Wang X, Sun HH, Adamson D. An impedance cardiography system: a new design. Ann Biomed Eng 1989; 17:535-565

(6.) Wang X, Van de Water JM, Sun HH. Hemodynamic monitoring by impedance cardiography with an improved signal processing technique. Proc IEEE Eng Med Biol 1993; 15:699-700...

...JM, Harrington GR, et: al. Multicenter trial of a new thoracic electrical bioimpedance device for cardiac output estimation. Crit Care Med 1994; 22:1907-1912

(9.) Tremper KK, Waxman K, Shoemaker...

...Tremper KK, Waxman K, Bowman R, Shoemaker WC. Continuous transcutaneous oxygen monitoring during respiratory failure, cardiac decompensation, cardiac arrest, and CPR. Crit Care Med 1980; 8:377-380

(11.) Hauser CJ, Shoemaker WC...1988; 94:1176--1186

(15.) Tuchschnidt J, Fried J, Astiz M, Rackow E. Elevation of cardiac output and oxygen delivery improves outcome in septic shock. Supranormal oxygen delivery improves mortality in septic...

16/3,K/17 (Item 6 from file: 149)

TGG Health&Wellness DB(SM)

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01740514 Supplier Number: 20153452 (USE FORMAT 7 OR 9 FOR FULL TEXT )

Tools of the trade: body fat analyzers allow the AFP Fitness Practitioner to easily track clients' progress.

Sol, Neil

American Fitness , v16 , n1 , p16(1)

Jan-Feb ,

1998

Publication Format: Magazine/Journal

ISSN: 0893-5238

Language: English

Record Type: Fulltext Target Audience: Consumer  
Word Count: 467 Line Count: 00044

Text:

...expenditure and proper nutrition. Excessive fat is the root cause of many health conditions from heart disease to diabetes. It is incumbent upon fitness professionals to help clients achieve optimal body ...

...and superior to that of other field techniques. In as much as the bio-electrical impedance technique offers relatively accurate results, its greatest value to the practitioner is in tracking the change in body composition with time and participation using the initial test results as the reference...

16/3,K/18 (Item 7 from file: 149)  
TGG Health&Wellness DB(SM)  
(c) 2008 The Gale Group. All rights reserved.  
01304169 Supplier Number: 11197516 (USE FORMAT 7 OR 9 FOR FULL TEXT )  
Noninvasive diagnosis of deep venous thrombosis.

Satiani, Bhagwan; Rustin, Rudolph; Biggers, Karen; Bordner, Laura  
American Family Physician , v44 , n2 , p569(6)  
August ,  
1991

Publication Format: Magazine/Journal  
ISSN: 0002-838X  
Language: English  
Record Type: Fulltext; Abstract Target Audience: Professional  
Word Count: 2439 Line Count: 00216

Abstract: ...vein; Doppler ultrasound, the use of sound waves to assess blood flow within a vessel; impedance plethysmography, the measurement of changes in size due to changes in amount of blood passing through a structure or cavity; and duplex ultrasound scanning, a method which...

Abstract:

...false-positive results include improper positioning of the patient,

patient apprehension, reduced arterial inflow, congestive heart failure, venoconstriction or external compression. Since the test is physiologic rather than anatomic, external compression...JAMA 1975;234:605-7.

2. Satiani B. Diagnostic methods in acute deep venous thrombosis. Cardiovasc Rev Rep 1981; 2:61-70.
3. Appelman PT, De long TE, Lampmann LE. Deep...

...J, Cade JF, Gallus AS. Anticoagulants in pregnancy: a review of indications and complications. Am Heart J 1972;83:301-5.  
9. Skillman Jj, Kent KC, Porter DH, Kim D. Simultaneous...

16/3,K/40 (Item 20 from file: 135)  
NewsRx Weekly Reports  
(c) 2008 NewsRx. All rights reserved.

0000056113 (USE FORMAT 7 OR 9 FOR FULLTEXT)

New Data Suggest Long-Term Efficacy Of Risperidone

Drug Week, January 25, 2002, p.28

DOCUMENT TYPE: Expanded Reporting LANGUAGE: English  
RECORD TYPE: FULLTEXT

Word Count:  
825

... 1% of patients overall. No medically relevant cases of QTc prolongation (an irregularity in the electrical impulses of the heart) were observed. Weight change for all doses of Risperdal Consta averaged 5.1 pounds at the end of a year. Pain at the injection site was...  
...extrapyramidal symptoms, dizziness, constipation, nausea, dyspepsia (upset stomach), rhinitis (runny nose), rash, and tachycardia (rapid heart beat). While dose dependent, extrapyramidal symptoms typically occur at a rate that is comparable with...

^16/3,K/41 (Item 1 from file: 275)  
Gale Group Computer DB(TM)  
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01112663 Supplier Number: 00623064  
Simplified Electrode Array for Impedance Cardiography.

Penney, B.C.; Patwardhan, N.A.; Wheeler, H.B.  
Medical & Biological Engineering & Computing, v23, n1, p1-7  
Jan. , 1985  
ISSN: 0140-0118  
Language: ENGLISH Record Type: ABSTRACT  
Simplified Electrode Array for Impedance Cardiography.

Abstract: Impedance cardiography has enjoyed widespread interest owing to the promise of noninvasive monitoring of cardiac function. In clinical practice, one factor limiting its use has been the need to use... ..of the neck and two on the lower left, anterolateral surface of the thorax. Simultaneous impedance derivative recordings were made with this 'spot' electrode array and with the conventional 'band' electrode array... ..correlation coefficients (r) between 0.77 and 0.98. This new array should facilitate impedance cardiographic measurements in the clinical setting. (Reprinted by permission of Publisher.)

Abstract:  
Descriptors: ...Heart;  
Named Persons:

17/3,K/1 (Item 1 from file: 148)  
Gale Group Trade & Industry DB  
(c)2008 The Gale Group. All rights reserved.  
0018437119 Supplier Number: 133681830 (USE FORMAT 7 OR 9 FOR FULL TEXT )  
Electrophysiologic laryngeal nerve monitoring in high-risk thyroid surgery.

Song, Phillip; Shemen, Larry  
Ear, Nose and Throat Journal, 84, 6, 378(4)  
June, 2005  
ISSN: 0145-5613  
Language: English  
Record Type: Fulltext  
Word Count: 2873 Line Count: 00241

...monitored in all 4 cases by bipolar electromyographic (EMG) needle electrodes placed in the cricothyroid muscle. The purpose of this article is to present rational guidelines for the use of electrophysiologic ...

...needle electrodes, direct observation of the vocal folds via fiberoptic or direct laryngoscopy, and recording muscle contraction and nerve integrity with a nerve monitor. (9,11) We monitored the RLN with...

...endotracheal tube. EBSLN monitoring was achieved by placing and suturing needle electrodes into the cricothyroid muscle. An electrophysiologist was present throughout all 4 of the operations reported herein. We feel that...

...nerve stimulator that enables direct stimulation of an exposed nerve and subsequent recording of the muscle activity. Electrode position is monitored by electrode impedance values. We have found the EMG-equipped...

...and 0.8%).

Needle electrodes. For EBSLN monitoring, needle electrodes are placed into the cricothyroid muscle and sutured into place (figure 2). An electrophysiologist can monitor the electrodes throughout the operation...

...or a previous vocal fold or nerve injury. Fortunately, an electrophysiologist can provide feedback regarding changes in impedance values or electrode dislodgement. Anesthesiologists must avoid using neuromuscular blocking agents in patients during nerve dissection...

23/3/K/17 (Item 14 from file: 16)

Gale Group PROMT(R)

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09802545 Supplier Number: 86397157 (USE FORMAT 7 FOR FULLTEXT)

Practical management of obesity.(Centers for Disease Control and Prevention, )(Statistical Data Included)

Sucher, Brandon J.; King, Deborah S.; Wofford, Marion R.

Drug Topics , v 146, n 9, p 82

May 6, 2002

Language: English Record Type: Fulltext

Article Type: Statistical Data Included

Document Type: Magazine/Journal ; Trade

Word Count: 5174

-

...reduction of 10% has been shown to decrease a patient's HbA1c by 0.9%.

Assessment of obesity

Obesity, a multifactorial disease, involves the complex relationship of genetic, environmental, social, psychological, cultural, and metabolic factors. Simply, obesity...

...intake and energy expenditure.

Several methods have been employed to assess body weight.

Hydrodensitometry, bio-impedance, computerized tomography, and magnetic resonance imaging (MRI) have been used to measure body fat composition...crucial to this patient in reducing morbidity and mortality.



She should be instructed in the value of dietary changes and utilizing physical activity to improve blood glucose control and to promote weight loss.

Patient...

^23/3,K/18 (Item 15 from file: 16)

Gale Group PROMT(R)

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09611128 Supplier Number: 83565715 (USE FORMAT 7 FOR FULLTEXT)

Advances in genomics, monitoring to impact critical care market.

Paul, Gary

The BBI Newsletter , v 25 , n 3 , p 65(7)

March , 2002

Language: English Record Type: Fulltext

Document Type: Newsletter ; Trade

Word Count: 4432

-

...be 5.8 times higher as a result of genetic predisposition. Studies of gene patterns (Variable Number of Tandem Repeat or VNTR genotype) in ICU patients have shown a 94% mortality rate...in the hemodynamic monitoring segment with its BioZ noninvasive cardiac output system. The BioZ employs impedance cardiography technology to measure cardiac output, systemic vascular resistance, contractility and fluid level. Reimbursement for Medicare patients is now offered for a number of indications, including monitoring of suspected cardiovascular disease, fluid management in cardiac patients, determination of the need for IV inotropic therapy and monitoring of heart-transplant patients after myocardial...

23/3,K/25 (Item 22 from file: 16)

Gale Group PROMT(R)

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04503537 Supplier Number: 46614204 (USE FORMAT 7 FOR FULLTEXT)

Lilly announces first available therapy for Somatropin Deficiency Syndrome in adults.

Business Wire , p 08081291

August 8 , 1996

Language: English Record Type: Fulltext

Document Type: Newswire ; Trade

Word Count: 4207

-

...of 0.0125 mg/kg/day. Adult onset patients and childhood onset patients differed by diagnosis (organic versus idiopathic pituitary disease), body size (normal versus small for mean height and weight), and age (mean = 44 versus 29 years). Lean body mass was determined by bioelectrical impedance analysis (BIA), validated with potassium 40. Body fat was assessed by BIA and sum of...Humatrope have changed from approximately 13 IU to 15 IU. This does not represent a change in product purity or the quantity (mg) of Somatropin per vial. The change in units is a result of harmonizing the defined specific activity of the current reference...

^23/3,K/67 (Item 6 from file: 149)

TGG Health&Wellness DB(SM)

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02949282 Supplier Number: 111490253 (USE FORMAT 7 OR 9 FOR FULL TEXT )

Bioimpedance-derived differences in cardiac physiology during exercise stress testing in low-risk chest pain patients.(Original Article)

Weiss, Steven J.; Ernst, Amy A.; Godorov, Gary; Diercks, Deborah B.; Jergenson, Josh; Kirk, J. Douglas  
Southern Medical Journal , 96 , 11 , 1121(7)

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Text:

Background: Little has been written about the utility of thoracic electrical bioimpedance (TEB)-derived cardiac physiologic variables in evaluating patients with low-risk chest pain syndromes. Noninvasive bioimpedance can monitor cardiac physiology while a patient is performing an exercise stress test. In addition, the demographics of patients with chest pain, the incidence of coronary artery disease (CAD), and the methods used for

evaluation have well-documented sex differences.

...measured ejection fraction (%), end-diastolic volume (EDV, ml), ventricular ejection time (ms), and thoracic fluid index ((OMEGA))

at peak exercise. Outcome variables were either proved CAD or patient sex. CAD was proved by angiography, stress scintigraphy, or...

...volume (SV) at rest and the change in variables between rest and peak exercise. Secondary variables were thoracic fluid index, ventricular ejection time, ejection fraction (EF), and end-diastolic volume (EDV) as determined by TEB...

...Data were collected with the monitor in slow mode, during which the device provides an average result for the six variables on 16 consecutive accepted beats.

An a priori power calculation showed that 15 patients per...  
...the primary variables (CO and SV), one of the secondary variables (EDV), and the calculated variables (systemic vascular resistance and cardiac index). Of note, there were no significant differences in either subgroup in the change in HR...

...in evaluating trends in results, and changes with exercise or position rather than the absolute values of cardiac variables.  
Although CO, thoracic fluid index, and ventricular ejection time have all been suggested in the past as correlating with true...

...be faithful.

-Mother Teresa

Table 1. Results at baseline and increases over baseline for all variables measured (a)

	Normal mean baseline values	
Primary outcome variables		
CO (L/min)	6.0 (+ or -)	2.0
SV (ml/min)	80 (+ or -)	16
Secondary...		
...calculated variables		
MAP	10.9 (+ or -)	13.8
HR	60.0 (+ or -)	21.5
Calculated variables		
SVR	-709.4 (+ or -)	335.0
Cardiac index	158.3 (+ or -)	103.0
	CAD-positive (n = 9)	P difference (95% CI)

Primary outcome...

...calculated variables

MAP 10.1 (+ or -) 12.0

HR 56.8 (+ or -) 22.5

Calculated variables

SVR -595.3 (+ or -) 394.0

Cardiac index 114.6 (+ or -) 68.6

Mean increase over baseline  
Males (n = 48)

Primary outcome variables...

...calculated variables

MAP 11.3 (+ or -) 14.7

HR 63.5 (+ or -) 19.8

Calculated variables

SVR -769.0 (+ or -) 334.7

Cardiac index 187.3 (+ or -) 114.9

P difference (95% CI)

Primary outcome variables

CO <0.01...criteria and  
performance of the exercise electrocardiogram. Circulation  
1995;92:1209-1216.

38. Cerqueira MD. Diagnostic testing strategies for coronary  
artery disease: Special issues related to gender. Am J Cardiol  
1995;75:52D-60D.

39. Velmahos GC...

...accidents. West J Med 1998;169:17-22.

40. Weiss SJ, Kulik JP, Calloway E. Bioimpedance cardiac  
output measurements in patients with presumed congestive heart failure.  
Acad Emerg Med 1997;4...

^27/3,K/35 (Item 12 from file: 149)  
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01309484 Supplier Number: 11649682 (USE FORMAT 7 OR 9 FOR FULL TEXT )  
Health-care spin-offs from space. (Way-Out Science: Arthritis Research in Space)

Bell, Nancy  
Arthritis Today , v5 , n5 , p32(1)  
Sept-Oct ,  
1991  
Publication Format: Magazine/Journal  
ISSN: 0890-1120  
Language: English  
Record Type: Fulltext Target Audience: Consumer  
Word Count: 260 Line Count: 00026

...to replace batteries.

- \* A wearable computerized system that allows physicians to monitor ambulatory patients with coronary artery disease. The device continually evaluates and records heart signals to determine the effectiveness of treatment.

- \* A human-tissue stimulator relieves chronic pain by sending electrical impulses to targeted nerve centers.

- \* An implantable defibrillator that senses the heart's inability to pump...

^27/3,K/77 (Item 31 from file: 135)  
NewsRx Weekly Reports  
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0000055407 (USE FORMAT 7 OR 9 FOR FULLTEXT)  
Electron Beam CT Detects Artery Disease In Former Kawasaki Patients  
Blood Weekly, December 6, 2001, p.13  
DOCUMENT TYPE: Expanded Reporting LANGUAGE: English  
RECORD TYPE: FULLTEXT  
Word Count: 811

... the size, shape and movement of the heart. An EKG is a graphic record of electrical impulses produced by the heart.

Dadlani says adding EBCT could help predict disease, but further assessment of the technology is needed.

"We are seeing more and more studies that indicate EBCT...

# INVENTORS

? show files

[File 350] Derwent WPIX 1963-2008/UD=200855

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[File 35] Dissertation Abs Online 1861-2008/Apr

(c) 2008 ProQuest Info&Learning. All rights reserved.

[File 65] Inside Conferences 1993-2008/Sep 03

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Set	Items	Description
S1	19	S AU=(DZWONCZYK, R? OR DZWONCZYK R?)
S2	15	S AU=(RIO, C? OR RIO C? OR DELRIO, C? OR DELRIO C?)
S3	62	S AU=(CONNELL, P? OR CONNELL P?)
S4	40	S AU=(HOWIE, M? OR HOWIE M?)
S5	0	S DZWONCZYK (2N) ROGER
S6	3	S (DELRIO OR RIO) (2N) CARLOS
S7	2	S CONNELL (2N) PATRICK
S8	0	S HOWIE (2N) MICHAEL
S9	0	S DZWONCZYK (2N) RODGER
S10	14	S S2 NOT S1
S11	32	S S4 NOT (S1 OR S2)
S12	61	S S3 NOT (S1 OR S2 OR S4 OR S6 OR S7)
S13	59	RD (unique items)

1/25,K/1 (Item 1 from file: 350)

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0014692008 & & Drawing available

WPI Acc no: 2005-039597/200504

XRPX Acc No: N2005-034568

Physiologic state detection method for human myocardium, involves diagnosing extent of change in myocardial physiologic state as function of rate of change of measured myocardial impedance from computed baseline value

Patent Assignee: UNIV OHIO STATE (OHIS); CONNELL P I (CONN-I); DEL RIO C L (DRIO-I);

DZWONCZYK R R (DZWO-I); HOWIE M B (HOWI-I)

Inventor: DEL RIO C L; DZWONCZYK R R; HOWIE M B; MCCONNELL P I; CONNELL P I

Patent Family ( 2 patents, 106 & countries )

Patent Number	Kind	Date	Update	Type
WO 2004105862	A2	20041209	200504	B
US 20060235326	A1	20061019	200670	E

WO 2004105862

Local Applications (no., kind, date): WO 2004US17224 A 20040528; US 2003473737 P 20030528; WO 2004US17224 A 20040528; US 2005555470 A 20051102

Priority Applications (no., kind, date): US 2003473737 P 20030528; US 2005555470 A 20051102

#### Alerting Abstract WO A2

NOVELTY - The method involves measuring periodically mean myocardial electrical impedance values between each pair of electrode pair attached to myocardium, and storing the values as function of time. The extent of change in the physiologic state is diagnosed as a function of rate of change of measured impedance from computed baseline value, after the mean impedance value is determined to change from baseline value.

USE - For detecting quantitative measure of physiologic and biochemical state of human myocardium or coronary artery during and after surgery, also detects extent of change of myocardial electrical impedance from baseline value to provide diagnosis of extent of ischemia, stenosis, tissue rejection, repurfusion and effectiveness of cardioplegia and ischemia preconditioning as well as the general effectiveness of coronary bypass surgery.

ADVANTAGE - Provides the physician with a quantitative estimate of the extent of any of several physiologic states of the myocardium or coronary artery.

DESCRIPTION OF DRAWINGS - The figure shows a block diagram of the myocardial impedance monitor.

...Inventor: DZWONCZYK R R Original Publication Data by Authority Argentina Publication No. Inventor name & address: Dzwonczyk, Roger R....DZWONCZYK, Roger, R

1/25,K/2 (Item 2 from file: 350)

Fulltext available through: [Order File History](#)

Derwent WPIX

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0013093879

WPI Acc no: 2003-174849/200317

Related WPI Acc No: 1994-082745; 1995-130285; 1997-153301; 1999-253690; 2001-541067; 2002-040030; 2002-204551; 2003-247558; 2003-329259; 2003-731055; 2003-764658; 2005-757289; 2006-520451; 2006-536777; 2006-536778; 2006-556598; 2006-658155; 2007-015395; 2007-156860; 2007-556564; 2007-716181; 2008-G49004

XRPX Acc No: N2003-137735

Sleep apnea evaluation for diagnosing cardiovascular morbidity, involves determining time interval between identified variations of oximetry waveform, corresponding to different apneas, for accessing severity of apnea

Patent Assignee: DZWONCZYK R (DZWO-I); LYNN E N (LYNN-I); LYNN L A (LYNN-I)

Inventor: DZWONCZYK R; LYNN E N; LYNN L A

Patent Family ( 2 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
US 20020173707	A1	20021121	200317	B
US 6748252	B2	20040608	200437	E

US 20020173707

Local Applications (no., kind, date): US 1995391811 A 19950221; US 1997789460 A 19970127; US 1997931976 A 19970917; US 2001776771 A 20010206; US 2002132535 A 20020424; US 1993151901 A 19931115; US

1995391811 A 19950221; US 1997789460 A 19970127 ; US 199752438 P 19970714; US 199752439 P 19970714; US 1997931976 A 19970917; US 1998115226 A 19980714; US 2001776771 A 20010206; US 2002132535 A 20020424

Priority Applications (no., kind, date): US 1993151901 A 19931115; US 1995391811 A 19950221; US 1997789460 A 19970127; US 199752438 P 19970714; US 199752439 P 19970714; US 1997931976 A 19970917; US 1998115226 A 19980714; US 2001776771 A 20010206; US 2002132535 A 20020424

#### Alerting Abstract US A1

NOVELTY - The variations corresponding to different apneas, of a patient, are identified in the pulse oximetry-derived waveform. The time interval between the identified waveform variations, is determined, based on which the severity of sleep apnea is accessed.

DESCRIPTION - An INDEPENDENT CLAIM is included for sleep apnea severity determining device.

USE - For accessing the severity of sleep apnea of patient to diagnose cardiovascular morbidity including heart attack and stroke.

ADVANTAGE - Since the intermediate intervals between waveform variation is determined, the sleep apnea is diagnosed more accurately.

DESCRIPTION OF DRAWINGS - The figure shows a block diagram of the sleep apnea evaluation system.

Inventor: DZWONCZYK R... Original Publication Data by AuthorityArgentinaPublication No. ...Inventor name & address:Dzwonczyk, Rodger

1/25,K/3 (Item 3 from file: 350)

Fulltext available through: [Order File History](#)

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0012899742 & & *Drawing available*

WPI Acc no: 2002-759342/200282

XRAM Acc no: C2002-214609

XRPX Acc No: N2002-597896

Portable manual resuscitation bag system for use in cardiopulmonary resuscitation, comprises deflatable bag, gas flow channel, exhalation port and indicator

Patent Assignee: LYNN L A (LYNN-I)

Inventor: DZWONCZYK R; LYNN L A; WODA R P

Patent Family ( 1 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
US 20020117173	A1	20020829	200282	B

US 20020117173

Local Applications (no., kind, date): US 2001270514 P 20010223; US 200280387 A 20020225

Priority Applications (no., kind, date): US 2001270514 P 20010223; US 200280387 A 20020225



#### Alerting Abstract US A1

NOVELTY - A portable manual resuscitation bag system comprises deflatable bag and gas flow channel connected with the bag for connection with an indwelling endotracheal tube. An exhalation port is connected with the flow channel. An indicator is mounted to detect exhalation flow or pressure within the flow channel or the exhalation port.

DESCRIPTION - A portable manual resuscitation bag system comprises a deflatable bag (14) having a terminal for connection with an oxygen source (24). A gas flow channel is connected with the bag for connection with an indwelling endotracheal tube so that gas can flow from the bag into a patient and from the patient through the flow channel. An exhalation port (40) is connected with the flow channel. An indicator (50) is mounted adjacent to the system for detecting exhalation flow or pressure within the flow channel or the exhalation port.

An INDEPENDENT CLAIM is included for an improved method of bagging a patient during cardiopulmonary resuscitation (CPR) using a disposable manual resuscitation bag system.

USE - For emergency administration of CPR and for bagging a patient during CPR (claimed).

ADVANTAGE - The inventive system has a low manufacturing cost. The indicator of the system is inexpensive, simple and disposable. It indicates trapped air during bagging so the survival in patients with obstructive lung disease can be improved during the CPR.

DESCRIPTION OF DRAWINGS - The figure is a perspective view of a medical resuscitation bag.

14 Deflatable bag

24 Oxygen source

40 Exhalation port

50 Indicator

Inventor: DZWONCZYK R... Original Publication Data by AuthorityArgentinaPublication No. ...Inventor name & address:Dzwonczyk, Roger

1/25,K/4 (Item 4 from file: 350)

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0008608703 & & *Drawing available*

WPI Acc no: 1998-144690/199813

Related WPI Acc No: 1995-147258; 1996-320975

XRPX Acc No: N1998-114510

Non-invasive device for at least partially occluding descending thoracic aorta of patient - comprises tubular member including heat exchange surface and heat transfer mechanism to transfer heat to heat transfer surface or to modify temperature of portion of patient

Patent Assignee: UNIV OHIO STATE (OHIS)

Inventor: BROWN C G; DZWONCZYK R R; WARD K R

Patent Family ( 1 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
US 5716386	A	19980210	199813	B

US 5716386

Local Applications (no., kind, date): US 1994266201 A 19940627; US 1996598734 A 19960208

Priority Applications (no., kind, date): US 1994266201 A 19940627; US 1996598734 A 19960208

#### Alerting Abstract US A

The non-invasive device for at least partially occluding the descending thoracic aorta of a patient and for manipulating core and cerebral temperature of a portion of a patient comprises an elongated tubular member configured at least in part to a patient's esophagus and having a selectively movable portion at a juxtaposition with the patient's descending thoracic aorta and a displacement mechanism for displacing the movable portion in the direction of the patient's descending thoracic aorta when the tubular member is positioned in the patient's esophagus. It also has a heat exchange surface of the tubular member and a heat transfer mechanism for transferring heat to the heat transfer surface or for transferring heat from the heat transfer surface. The heat transfer mechanism transfers a sufficient amount of heat to modify the temperature of a portion of the patient.

USE - For treating cardiac arrest patients.

...Inventor: DZWONCZYK R R Original Publication Data by AuthorityArgentinaPublication No. Inventor name & address:Dzwonczyk, Roger R...

1/25,K/5 (Item 5 from file: 350)

Fulltext available through: [Order File History](#)

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0008430659

WPI Acc no: 1997-548845/199750

Related WPI Acc No: 1996-505202

XRAM Acc no: C1997-174904

XRPX Acc No: N1997-457705

Apparatus for guiding administration of therapy of person in cardiac arrest - transforms time domain samples of electrocardiogram into domain power spectrum and determines clinically useful characteristic(s) from spectrum

Patent Assignee: UNIV OHIO STATE RES FOUND (OHIS)

Inventor: BROWN C G; DZWONCZYK R R

Patent Family ( 1 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
US 5683424	A	19971104	199750	B

US 5683424

Local Applications (no., kind, date): US 1994298376 A 19940830; US 1996663482 A 19960613

Priority Applications (no., kind, date): US 1994298376 A 19940830; US 1996663482 A 19960613

#### Alerting Abstract US A

An apparatus transforms time domain samples of an electrocardiogram of a patient in ventricular fibrillation or

asystole to a frequency domain power spectrum and then determines at least one parameter from it. The parameter is predictive of the patient's ability to survive for a preset period. A processor resolves the parameter(s) to a clinically useful characteristic of the person's heart. The characteristic may be the metabolic state of the myocardium. The apparatus may control a defibrillator, a resuscitator or the type and dose of drugs to be delivered.

USE - The apparatus is used for guiding the administration of therapy of a person in cardiac arrest (claimed).

...Inventor: DZWONCZYK R R Original Publication Data by AuthorityArgentinaPublication No. ...Inventor name & address:Dzwonczyk, Roger R

1/25,K/6 (Item 6 from file: 350)

Fulltext available through: [Order File History](#)

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0007874134 & & *Drawing available*

WPI Acc no: 1996-505202/199650

Related WPI Acc No: 1997-548845

XRPX Acc No: N1996-425783

Ventricular fibrillation and systole therapy non-invasive administration - monitoring and evaluating at least one frequency parameter of power spectrum that is predictive of clinically relevant cardiac arrest outcome for subject

Patent Assignee: UNIV OHIO STATE RES FOUND (OHIS)

Inventor: BROWN C G; DZWONCZYK R R

Patent Family ( 4 patents, 18 & countries )

Patent Number	Kind	Date	Update	Type
US 5571142	A	19961105	199650	B
WO 1997024062	A1	19970710	199733	NCE
EP 874584	A1	19981104	199848	NCE
JP 2001519681	W	20011023	200202	NCE

US 5571142

Local Applications (no., kind, date): US 1994298376 A 19940830; WO 1995US17022 A 19951228; EP 1995944683

A 19951228; WO 1995US17022 A 19951228; WO 1995US17022 A 19951228; JP 1997524285 A 19951228

Priority Applications (no., kind, date): US 1994298376 A 19940830; WO 1995US17022 A 19951228; EP

1995944683 A 19951228; JP 1997524285 A 19951228

#### Alerting Abstract US A

The method involves connecting electrodes to a body of a subject and detecting from the electrodes an analog electrical potential which is proportional to the electrical potential generated by the subject's heart. The analog potential is then sampled for a selected interval of time to obtain a set of time domain samples. The power distribution of the electrical potential is detected by transforming the time domain samples to a frequency domain power spectrum. At least one frequency parameter of the power spectrum that is predictive of a clinically relevant cardiac arrest outcome for the subject is then monitored and evaluated.

At least one parameter selected from the group consisting of at least centroid frequency and peak power frequency.

A monitored evaluation of the selected frequency parameter is used in administering therapy to the subject.  
USE/ADVANTAGE - For determin useful parameters from subject's ECG which help guide therapeutic intervention during ventricular fibrillation. Provides non-invasive guiding therapeutic intervention during ventricular fibrillation and systole.

...Inventor: DZWONCZYK R R Original Publication Data by AuthorityArgentinaPublication No. ...Inventor name & address:DZWONCZYK, Roger, R., 283 East Longview Avenue, Columbus, OH 43202, US... ...Dzwonczyk, Roger R... ...DZWONCZYK, ROGER, R., US

1/25,K/7 (Item 7 from file: 350)

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0007698937 & & *Drawing available*

WPI Acc no: 1996-320975/199632

Related WPI Acc No: 1995-147258; 1998-144690

XRPX Acc No: N1996-270225

Non-invasive method of partially occluding descending thoracic aorta and manipulating core and cerebral temp. of patient - includes device extended into patient's oesophagus and manipulated to selectively displace wall of oesophagus towards descending thoracic aorta to thereby at least partially occlude it

Patent Assignee: UNIV OHIO STATE (OHIS)

Inventor: BROWN C G; DZWONCZYK R R; WARD K R

Patent Family ( 1 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
US 5531776	A	19960702	199632	B

US 5531776

Local Applications (no., kind, date): US 1993126542 A 19930924; US 1994266201 A 19940627

Priority Applications (no., kind, date): US 1993126542 A 19930924; US 1994266201 A 19940627

Alerting Abstract US A

The method includes the steps of positioning in the patient's oesophagus a device adapted to extend in the oesophagus and selectively displacing with the device a wall of the oesophagus posterior-laterally in the direction of the descending thoracic aorta.

The next step is exchanging heat between the device and blood flowing through a thoracic vessel in order to increase or decrease the temperature of the blood flowing through the thoracic vessel.

ADVANTAGE - The device is used to move, or displace a wall of the portion of the oesophagus posterior laterally in the direction of the descending thoracic aorta in order to at least partially occlude the descending thoracic aorta. This increases central and intracranial arterial pressure without increasing central and intracranial venous pressure.

...Inventor: DZWONCZYK R R Original Publication Data by AuthorityArgentinaPublication No. Inventor name

& address:Dzwonczyk, Roger R...

1/25,K/8 (Item 8 from file: 350)

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0007413083 & *Drawing available*

WPI Acc no: 1996-020259/199602

XRPX Acc No: N1996-016934

Method of treating patient by inflating and deflating thoracic cavity with gas - involves inserting two tubes into left and right hemithoraces, connected to gas source and pump

Patent Assignee: UNIV OHIO STATE (OHIS)

Inventor: BROWN C G; DZWONCZYK R R; WARD K R

Patent Family ( 3 patents, 21 & countries )

Patent Number	Kind	Date	Update	Type
WO 1995027527	A1	19951019	199602	B
US 5474533	A	19951212	199604	E
AU 199522327	A	19951030	199606	E

WO 1995027527

Local Applications (no., kind, date): WO 1995US3922 A 19950331; US 1994225835 A 19940411; AU 199522327 A 19950331

Priority Applications (no., kind, date): US 1994225835 A 19940411

Alerting Abstract WO A1

The method involves using a first tube (20) for insertion into the patient's left haemothorax, and a second tube (21) for insertion into the right haemothorax. The distal ends of the tubes extend from the hemithoraces while the proximal ends extend externally from the body for connection to a gas source and a pump (11) for periodically inflating a haemothorax and a further pump (12) for periodic deflation.

The chest tubes are inserted through respective holes in each haemothorax of the patient and attached to the gas source and exhaust pump with connections and valves (16-19) for alternately inflating and deflating the thoracic cavity. A heat exchanger (15) is interposed between the gas source and tubes for warming or cooling the gas. An electrode is mounted on the tubes and connected through a wire to electronic medical equipment. Collapsed seals are formed annularly around the tubes and expanded after insertion to prevent escape of gas from the hemithoraces. The seal may be a bladder expanded by filling with a fluid, or a wire mesh receptacle mechanically expanded.

USE/ADVANTAGE - For treating a patient suffering from cardiac arrest, shock, respiratory failure, hypothermia, hyperthermia or head injury. Creates artificial circulation to the heart and brain during cardiac arrest and other forms of shock while simultaneously rapidly producing states of therapeutic hypothermia.

...Inventor: DZWONCZYK R R Original Publication Data by AuthorityArgentinaPublication No. ...Inventor name & address:DZWONCZYK R R... ..Dzwonczyk, Roger R... ..DZWONCZYK, ROGER, R., US

1/25,K/9 (Item 9 from file: 350)

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0007290605 & & *Drawing available*

WPI Acc no: 1995-350406/199545

XRPX Acc No: N1995-261240

Method for measuring complex impedance spectrum of portion of myocardium between two electrodes - includes applying current pulse to electrodes to generate voltage response between them, and sampling and digitising current pulse and voltage response and taking fast Fourier transform of them

Patent Assignee: UNIV OHIO STATE (OHIS)

Inventor: DZWONCZYK R R; HARTZLER A W; LIU A Y

Patent Family ( 1 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
US 5454377	A	19951003	199545	B

US 5454377

Local Applications (no., kind, date): US 1993134288 A 19931008

Priority Applications (no., kind, date): US 1993134288 A 19931008

Alerting Abstract US A

The method comprises applying a current pulse to the electrodes to generate a voltage response between the electrodes, and sampling and digitizing both the applied current pulse and the voltage response. The next step is performing a fast Fourier transform upon both the digitized current pulse and the digitized voltage response to obtain a complex current pulse spectrum and a complex voltage response spectrum.

The next step is dividing the complex voltage response component for each frequency in the voltage response spectrum by the complex current pulse component for each corresponding frequency in the current pulse spectrum to obtain the complex impedance spectrum. The final step is displaying complex impedance spectrum data for analysis for a physician.

ADVANTAGE - The spectrometer determines myocardial tissue electrical impedance over a certain frequency range of interest rather than simply a meter which measures impedance at one particular frequency since conditions such as ischemia produce characteristic complex impedance changes at specific frequencies. The device evaluates the complex electrical impedance rather than just the modulus or magnitude of the impedance since the phase angle of the impedance at certain frequencies has shown to have characteristic changes with ischemia.

Inventor: DZWONCZYK R R... Original Publication Data by AuthorityArgentinaPublication No. ...Inventor name & address:Dzwonczyk, Roger R

1/25,K/10 (Item 10 from file: 350)

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0007117205 & & *Drawing available*

WPI Acc no: 1995-147258/199519

Related WPI Acc No: 1998-144690; 1996-320975

XRPX Acc No: N1995-115609

Treatment appts. for cardiac patients providing resuscitation and shock facilities - has flexible tube with elongated bladder attached between opposite ends and stomach bladder at distal end with low impedance pathway between stomach and oesophageal electrodes used for defibrillation

Patent Assignee: UNIV OHIO STATE (OHIS)

Inventor: BROWN C G; DZWONCZYK R G; DZWONCZYK R R; WARD K R

Patent Family ( 3 patents, 17 & countries )

Patent Number	Kind	Date	Update	Type
WO 1995009015	A2	19950406	199519	B
WO 1995009015	A3	19950427	199615	E
US 5626618	A	19970506	199724	E

WO 1995009015

Local Applications (no., kind, date): WO 1994US10713 A 19940922; WO 1994US10713 A 19940922; US 1993126542 A 19930924

Priority Applications (no., kind, date): US 1993126542 A 19930924

#### Alerting Abstract WO A2

The appts. includes an expansile walled body for positioning in a patient's oesophagus near the posterior of the patient's heart and providing a sufficiently rigid supporting body against which the heart and aorta can be manually forced and compressed. The appts. has at least two electrodes, the first attached to the expansile walled body for inducing a flow of electrical current between the electrodes through at least a portion of the heart.

The expansile walled body comprises a fluid fillable bladder. The bladder has flexible, inelastic walls and a conductive region which serves as an electrode. The oesophageal bladder serves as a platform by hardening the oesophagus behind the heart. The heart is compressed between the sternum and hardened bladder, therefore enhancing artificial circulation.

USE/ADVANTAGE - Treatment of patients suffering cardiac arrest, arrhythmias and patients under-going cardioversion, patients in shock etc and insertion and positioning of devices in patients for treatment. Improves artificial circulation provided by defibrillator.

...Inventor: DZWONCZYK R G... ..DZWONCZYK R R Original Publication Data by

AuthorityArgentinaPublication No. Inventor name & address:Dzwonczyk, Roger R.... ..DZWONCZYK, ROGER, G., US... ..DZWONCZYK R G

1/25,K/11 (Item 11 from file: 350)

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0005809555 & *Drawing available*

WPI Acc no: 1992-032851/199204

XRPX Acc No: N1992-024978

Ventricular fibrillation elapsed time approximate measurement method - uses digitised analogue electrocardiogram signal to obtain time domain samples for fourier transformation to frequency domain spectrum

Patent Assignee: UNIV OHIO STATE (OHIS)

Inventor: BROWN C G; DZWONCZYK R

Patent Family ( 1 patents, 1 & countries )

Patent Number	Kind	Date	Update	Type
US 5077667	A	19911231	199204	B

US 5077667

Local Applications (no., kind, date): US 1989378426 A 19890710; US 1990537365 A 19900613

Priority Applications (no., kind, date): US 1990537365 A 19900613

Alerting Abstract US A

The approximate elapsed time since the onset of ventricular fibrillation is detected from an analog electrocardiogram signal. The signal is digitised for a time interval of four seconds to obtain a data set of time domain samples. These time domain samples are Fourier transformed to a frequency domain spectrum and the median frequency which bisects the energy of the power spectrum is detected.

That median frequency is then compared to a pattern of experimentally obtained median frequency data as represented by a mathematical algorithm to calculate the estimated time from the onset of ventricular fibrillation. This frequency parameter can also be used to evaluate the response to therapy during ventricular fibrillation and CPR, as well as estimate the most appropriate time to defibrillate a subject following various pharmacological and mechanical intervention.

USE - Electrocardiogram monitor. @ (26pp Dwg.No.1/14)@

...Inventor: DZWONCZYK R Original Publication Data by Authority Argentina Publication No. ...Inventor name & address: Dzwonczyk, Roger

; t s1/5, k/12-19

1/5, K/12 (Item 1 from file: 65)

Inside Conferences

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0006125768 Inside Conference Item ID: CN058889204

Beta-Adrenergic Receptor Blockade Attenuates the Electronic Uncoupling Induced by Coronary Artery Occlusion

del Rio, C. L.; Dzwonczyk, R.; McConnell, P. I.; Clymer, D. B.; Howie, M. B.; Billman, G. E.

Conference: Computers in cardiology 2004 - Conference; 31st



COMPUTERS IN CARDIOLOGY , 2004; VOL 31 P: 405-408

Long Beach, Calif, IEEE Computer Society, 2004

ISSN: 0276-6574 ISBN: 0780389271

Language: English Document Type: Conference Papers

Location: Chicago, Ill.

2004; Sep ( 200409 ) ( 200409 )

British Library Item Location: 3394.895000

Descriptors: Computers; Cardiology del Rio, C. L.; Dzwonczyk, R.; McConnell, P. I.; Clymer, D. B.; Howie, M. B.; Billman, G. E.

1/5,K/13 (Item 2 from file: 65)

Inside Conferences

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05983935 Inside Conference Item ID: CN061918678

8.1.2 Devices Used to Expose the Posterior Coronary Artery in OPCABG Surgery May Cause Ischemia

Dzwonczyk, R.; del Rio, C. L.; Sun, B.; Michler, R. E.; Howie, M. B.

Conference: Annual IEEE Northeast bioengineering conference - 31st

, 2005; CONF 31 P: 148-149

(New York, N.Y.); Institute of Electrical and Electronics Engineers., c2005

ISBN: 0780391055

Language: English Document Type: Conference Papers

Sponsor: Stevens Institute of Technology

IEEE Engineering in Medicine and Biology Society

Location: Hoboken, NJ

2005; Apr ( 200504 ) ( 200504 )

British Library Item Location: 6842.154400

Descriptors: Bioengineering; Biomedical engineering; IEEE Dzwonczyk, R.; del Rio, C. L.; Sun, B.; Michler, R. E.; Howie, M. B.

1/5,K/14 (Item 3 from file: 65)

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05680988 Inside Conference Item ID: CN058889204

Beta-Adrenergic Receptor Blockade Attenuates the Electronic Uncoupling Induced by Coronary Artery Occlusion

del Rio, C. L.; Dzwonczyk, R.; McConnell, P. I.; Clymer, D. B.; Howie, M. B.; Billman, G. E.

Conference: Computers in cardiology 2004 - Conference; 31st

COMPUTERS IN CARDIOLOGY , 2004; VOL 31 P: 405-408

Long Beach, Calif, IEEE Computer Society, 2004

ISSN: 0276-6574 ISBN: 0780389271

Language: English Document Type: Conference Papers

Location: Chicago, Ill.

2004; Sep ( 200409 ) ( 200409 )

British Library Item Location: 3394.895000

Descriptors: Computers; Cardiology del Rio, C. L.; Dzwonczyk, R.; McConnell, P. I.; Clymer, D. B.; Howie, M.

B.; Billman, G. E.

1/5,K/15 (Item 4 from file: 65)

Inside Conferences

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04669246 Inside Conference Item ID: CN048779426

MYOCARDIAL ELECTRICAL IMPEDANCE IS CORRELATED TO CORONARY ARTERY BLOOD FLOW IN HUMANS

Howie, M. B.; Michler, R. E.; Brown, D. A.; Wolf, R. K.; delRio, C.; Dzwonczyk, R.

Conference: Society of Cardiovascular Anesthesiologists - Annual meeting; 25th

ANNUAL MEETING-SOCIETY OF CARDIOVASCULAR ANESTHESIOLOGISTS , 2003; 25TH P: SCA 107 SCA, 2003

Language: English Document Type: Conference Preprinted papers, presentations and programme

Sponsor: Society of Cardiovascular Anesthesiologists

Location: Miami Beach, FL

2003; Apr ( 200304 ) ( 200304 )

British Library Item Location: 1087.886200

Descriptors: cardiovascular anesthesiologists; SCA Howie, M. B.; Michler, R. E.; Brown, D. A.; Wolf, R. K.; delRio, C.; Dzwonczyk, R.

1/5,K/16 (Item 5 from file: 65)

Inside Conferences

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04521271 Inside Conference Item ID: CN047280321

Myocardial Electrical Impedance Responds to Ischemia and Reperfusion in Humans

Dzwonczyk, R.; del Rio, C.; Brown, D. A.; Michler, R. E.; Wolf, R. K.; Howie, M. B.

Conference: Computers in cardiology - Conference; 29th

COMPUTERS IN CARDIOLOGY , 2002; VOL 29 P: 541-544

IEEE, 2002

ISSN: 0276-6547 ISBN: 0780377354

Language: English Document Type: Conference Papers

Editor: Murray, A.

Sponsor: Institute of Electrical and Electronics Engineers

Location: Memphis, TN

2002; Sep ( 200209 ) ( 200209 )

British Library Item Location: 3394.895000

Note:

IEEE cat no 02CH37421

Descriptors: cardiology; computers; IEEE; electrical engineers; electronics engineers Dzwonczyk, R.; del Rio, C.; Brown, D. A.; Michler, R. E.; Wolf, R. K.; Howie, M...

1/5,K/17 (Item 6 from file: 65)

Inside Conferences

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04521258 Inside Conference Item ID: CN047280199

Use of Myocardial Electrical Impedance to assess the Efficacy of Preconditioning

del Rio, C. L.; Dzwonczyk, R.; Clymer, B.; McSweeney, T.; Awad, H.; Czerwinski, P.; Howie, M. B.

Conference: Computers in cardiology - Conference; 29th

COMPUTERS IN CARDIOLOGY, 2002; VOL 29 P: 489-492

IEEE, 2002

ISSN: 0276-6547 ISBN: 0780377354

Language: English Document Type: Conference Papers

Editor: Murray, A.

Sponsor: Institute of Electrical and Electronics Engineers

Location: Memphis, TN

2002; Sep ( 200209 ) ( 200209 )

British Library Item Location: 3394.895000

Note:

IEEE cat no 02CH37421

Descriptors: cardiology; computers; IEEE; electrical engineers; electronics engineers del Rio, C. L.; Dzwonczyk, R.; Clymer, B.; McSweeney, T.; Awad, H.; Czerwinski, P.; Howie, M. B.

1/5,K/18 (Item 7 from file: 65)

Inside Conferences

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04101254 Inside Conference Item ID: CN043080155

USE OF MYOCARDIAL ELECTRICAL IMPEDANCE TO ASSESS THE EFFICACY OF HIGH DOSE ADENOSINE-ENHANCED PRECONDITIONING

Howie, M. B.; Dzwonczyk, R.; del Rio, C. L.; McSweeney, T. D.; Awad, H.; Czerwinski, P.

Conference: Society of Cardiovascular Anesthesiologists - Annual meeting; 24th

ANESTHESIA AND ANALGESIA -CLEVELAND- , 2002; VOL 94; NO 4; SUPPL P: 14

Lippincott Williams &amp; Wilkins, 2002

ISSN: 0003-2999

Language: English Document Type: Conference Preprinted abstracts and programme

Sponsor: Society of Cardiovascular Anesthesiologists

Location: New York, NY

2002; Apr ( 200204 ) ( 200204 )

British Library Item Location: 0900.500000

Descriptors: cardiovascular anesthesiologists; SCA Howie, M. B.; Dzwonczyk, R.; del Rio, C. L.; McSweeney, T. D.; Awad, H.; Czerwinski, P.

1/5,K/19 (Item 8 from file: 65)

Inside Conferences

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02519906 Inside Conference Item ID: CN026290469

Diabetic Patients Have Increased Volume of Gastric Contents Compared to Non-Diabetic Patients

Harter, R. L.; Kelly, W. B.; Orfino, P.; Dzwonczyk, R.

Conference: American Society of Anesthesiologists - Annual meeting

ANESTHESIOLOGY -PHILADELPHIA THEN HAGERSTOWN- , 1998; VOL 89; NUMBER 3; SUPP A P:

A1202

Lippincott Williams & Wilkins, 1998

ISSN: 0003-3022

Language: English Document Type: Conference Preprinted abstracts

Sponsor: American Society of Anesthesiologists

Location: Orlando, FL

Date: Oct 1998 ( 199810 ) ( 199810 )

British Library Item Location: 0900.600000

Descriptors: anesthesiologists Harter, R. L.; Kelly, W. B.; Orlino, P.; Dzwonczyk, R.

11/5,K/31 (Item 8 from file: 65)

Inside Conferences

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01104749 Inside Conference Item ID: CN010822142

Electroencephalographic Characteristics during Continuous Infusion of Remifentanyl for Coronary Artery Bypass Graft Surgery

Moore, K.; Howie, M. B.; Jopling, M. W.; Lanzerotte, M. J.

Conference: Annual meeting

ANESTHESIOLOGY -PHILADELPHIA THEN HAGERSTOWN- , 1995; VOL 83; NUMBER 3//A P: A377

Lippincott-Raven, 1995

ISSN: 0003-3022

Language: English Document Type: Conference Preprinted abstracts

Sponsor: American Society of Anesthesiologists

Location: Atlanta, GA

Date: Oct 1995 ( 199510 ) ( 199510 )

British Library Item Location: 0900.600000

Descriptors: anesthesiologists Moore, K.; Howie, M. B.; Jopling, M. W.; Lanzerotte, M. J.